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Precision SHOOTING

a magazine for Shooters by Shooters

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THE COVER PHOTO

"Out of sight, out of mind" to the average competitor in shooting matches are the people who score the targets or measure the groups and do the other necessary statistical work which is so essential to a successful meet. But they seldom, if ever, "get their pictures in the paper" or even a brief commendation in the shoot reports. We think it is time one of them does "get his picture in the paper" in tribute to the whole group of those people.

The photo on the cover this month shows Ray K. Green, a member of the Mill Creek Rifle Club at Kansas City, Kansas, as he measures a group on a bench rest target during the Mid-Continent Regional Bench Rest Championships last October.

This meet, like many of the bench rest shoots in this Region, was a night shoot on the lighted range. While the competitors were having their fun shooting, Ray Green was WORKING until the wee small hours of the morning in order that the results of the shooting might be posted promptly for the competitors to see.

Our hat is off in respect and appreciation to the statistical workers, who ever and where ever they may be.

PHT

A DESIRABLE PROGRAM

There are a very considerable number of individual shooting people who have been and are doing quite careful and serious experimenting and testing in the firearms ballistic field. It has been felt by some that lack of exchange of information among these people may have hindered the work of some of them, and caused needless duplication of effort for others.

In probably a good many cases individual experimenters have exchanged information of their work with a few of their acquaintances but, so far as we know, there has been little exchange of such information between various groups, and no planned program for so doing.

Some experimenters have reported on their work and their results for publication in various shooting periodicals. Others who may have been conducting just as worthwhile experimental work may have felt incompetent in writing reports for publication, didn't take the time to do it, or just didn't think their work worth reporting. Results of some of that work which has not been reported may have been of great interest and of more than a little worth to the shooting fraternity.

The research departments of the major arms and ammunition companies do no doubt have the answers to many of the problems on which many individual shooters are working, but much of that information has not been generally available.

The Cooperative Team Testing program, headed by Preston J. Hogue (13713 Rosedale Ave., Southgate, Michigan), has as one of its objectives the exchange of information among its participating members. From what information we have it seems that program is working to some extent and that work of its members is progressing. Very little has been published on the results of any of that work, no doubt mainly due to work and testing of projects being as yet not fully completed. While yet (apparently) limited in number of participating members, this program is national in the extent of its member distribution.

Quite recently a more localized plan for cooperation in the experimental effort and exchange of information has been proposed. A meeting to discuss this plan is reported in this issue by Edward M. Yard (110 Kensington Ave., Trenton, N. J.) and some of the objectives of the plan are outlined.

A start of the plan for this fairly local group seems assured and it is hoped that some plan may be devised to exchange information with similar local groups in other areas.

It would seem to this writer that the idea for a group of experimenters within an area small enough that the participators might have occasional face-to-face meetings is a good and practical one. It might be and probably would be possible for some of these people to work shoulder-to-shoulder on at least parts of some of their projects.

For the wider cooperation and exchange of information it might be practical and sensible for localized groups to cooperate, in the nature of local chapters, with the already existing plan headed by Pres. Hogue. The question is; just how much do the individual experimenters and local groups wish to cooperate with one another and how much "organization" will they stand for?

PHT

DOES IT "SAVE MONEY"?

One of the main points in favor of the reloading of ammunition, stressed in any literature on the subject that I have ever seen, is its economy. In every reloading manual or book that I can remember of having seen, a comparison is made between the cost of the components required to reload a fired cartridge case and the over-the-counter cost of factory loaded ammunition. On the basis of that simple comparison, the economy of reloading does look pretty alluring.

The "overhead" for reloading (cost of necessary equipment) is pretty much soft-peddled, if mentioned at all. Even the minimum of equipment necessary to reload satisfactory and safe ammunition represents an initial expense of at least $30.00 (a tong tool with dies for one caliber and either a powder measure or a scale). The "economy" picture is painted brightest for reloading rifle ammunition with cast lead-alloy bullets, but a bare minimum of necessary equipment for casting the bullets would approximately double the initial "overhead" investment. Considering this "overhead" investment, the person who would reload only the small amount of ammunition that he might need for hunting wouldn't find much economy in so doing.

The economy of reloading becomes more apparent to the person who wants to do more shooting than he feels he can afford to do with factory loaded ammunition. The greater the amount of ammunition that is reloaded, the smaller the unit of production cost, chargable to "overhead," becomes. The joker in this is that the cheaper ammunition encourages more shooting and one ends up with a greater annual outlay for his hobby, but gets more pleasure from it. One doesn't "save money" thusly, but he does get greater pleasure value from what he does spend.

The other main point made in favor of reloading ammunition is that it permits one to "tailor make" ammunition to give best performance in his particular guns. With experience, practice, observation and a lot of experimental shooting, that can be quite true. That doesn't "save money" but it does add to an increasingly interesting hobby.

For those who really like guns and shooting (and no one will be reading this who doesn't), reloading ammunition is usually the real start of a broadening and absorbing interest in a fascinating hobby. It satisfies and expands the do-it-yourself urge that most of us have. It aids in satisfying some of our curiosity. It fills our "spare time" with pleasant and satisfying hours. But it doesn't "save money."

Any "hobby" costs something to engage in. As one's hobby becomes more interesting one tends to spend more on it, and the shooting hobby is no exception.

Starting reloading with a bare minimum of equipment, if one has some success with it he soon finds he "needs" some additional items of equipment. Then he wants better equipment to load better ammunition (he hopes). As he loads more, and **shoots** more, his resulting shooting performance should improve, and he'll then probably want better guns in the hope of further improving results. He'll want better sighting equipment, better stocks and other refinements, as well as ever better loading equipment **and more of it.** The really "crazy" shooting hobbiest can get to the point where his "hobby hours" are what he lives for (as this one already has).

Does reloading save money? I say "NO." But it sure can start some folks into a hobby that can give them a whale of a lot of pleasure.

PHT

ALASKA BENCH MATCH PROPOSAL

Shooters in the Anchorage area of Alaska have proposed the holding of a Mid-Nite Sun bench rest match in 1961 if enough shooters in "the lower 48 states" indicate interest in such an attraction as an added inducement for a vacation trip to Alaska.

The Ike Walton League's Birchwood Range has bench rest facilities to accommodate an entry of at least 25 or 30 shooters in a tournament, with 100 and 200 yard ranges. The range is located on high ground on the shore of Knik Arm of Cook Inlet, about 18 miles north of Anchorage on the main road from the lower states. It is adjacent to the Birchwood Air Field, where a number of small planes are based and where multi-engine planes may land. Trailer camping facilities are available at the bench rest range and a ground-keeper lives at the range and keeps it in condition for the shooters. There are other camping facilities at the Ike Walton picnic grounds a half mile from the range.

It is stated that shooting conditions on this range are usually very excellent. It is also stated that weather conditions in this area are at the best in May and June. It is said that July and August are sometimes a bit wet but that a match has never yet had to be cancelled because of rain. The bench rest firing line will be covered in the Spring and covered loading benches provided. It is quite definitely stated that mosquitoes are no problem at the range due to its high and dry location.

The Anchorage shooters would appreciate hearing from any and all shooters in the lower states who might be interested in going to such a Mid-Nite Sun Bench Rest Shoot, in order to determine if the holding of such a match would be feasible. Any who may be interested in such a trip should write to J. Scott Donaldson, Box 525, Anchorage, Alaska.

LETTERS

FROM COLONEL WHELEN

Dear Phil:

I have been so busy the past several months on the range doing a lot of experimental shooting and verifying it that I have not had a chance to write you as usual. I like to verify my testing a number of times with different arms and loads to be dead sure of it, and have it tried by a few of the really reliable shooters on our range also, before I set it down. Too many shooters these days jump at conclusions with too little experience and rush into print with matters that we have proved out here are just not so, as a rule. But I had my last shooting day a week ago until it gets warmer in the Spring, and I am trying to catch up on my writing.

I have one matter that I have been wanting to write you on for some time—a very important matter I think. In the last issue of the GUN DIGEST, on International Shooting and Free Rifles, the writer described the wonderful strides that the Army Advanced Marksmanship Unit had been making in this form of shooting, and in the development of accuracy and dependability in free rifles, noting particularly the details of the many improvements in rifles and ammo. And then he went on to say that the Bench Rest Shooters Association when it was formed had avowed as one of its endeavors to develop better accuracy and dependability in 300 meter free rifles, ammo, and shooting, but that to date they had not made a single contribution in this matter.

Now it seems to me that the first time I ever heard of heavy receivers with long barrel threads, tight bedding of the actions in the stocks, free floating of barrels in forearms, and open point bullets with uniform wall thickness and soft swaged by the expanding up process was in Precision Shooting; all developed by Bench Rest Shooters, and all verified by them many times.

But it does seem to me that we ought to go one step further, and start on it immediately. We have almost certainly developed the unrestricted bench rest rifle to as high a degree of efficiency as is humanly possible. We are also on the way to do the same thing with varmint and hunting rifles, but the latter only in small calibers that are hardly practical. I feel that we should start another class of competitive bench shooting, restricted to free rifles built strictly in conformity with the International rules. Our directors should do this and formulate the rules right away without delay. In helping to develop the free rifle we will also be developing the big bore target rifle which we have neglected almost entirely. If we assume that the rifle is a weapon essentially and practically to procure food and defeat our enemies, then only the big bore rifle is the really practical weapon. I don't call a 6 m/m a really big bore.

Big bore target shooting has been almost entirely neglected recently, probably because of the expense and the lack of suitable ranges. It is only at Camp Perry, where Uncle Sam pays the bill, that it flourishes to any appreciable extent. Today we are beginning to find that efficient big bore target rifles can be built at no more expense than any other good rifles, that ammunition can be hand loaded comparatively cheaply, and that 500 and 600 yard ranges are not necessary. Big bore target shooting can be conducted just as effectively on 100 and 200 yard ranges as at longer distances. In fact the Army has gone on record as stating that 300 meters is the longest distance at which the rifle is a practical sure hitting weapon. See TRAINFIRE I.

IN CALIFORNIA . . .

Tune up your deer rifle, your bench rest rifle, your target rifle and yourself at the

HUTTON RIFLE RANCH . . .

Official Range of GUNS and AMMO magazine
20 Covered Bench Rests with Spotting Scopes
Midway between Highway 101 and 101-A, in
Topanga Canyon, near Santa Monica, Calif.

Col. C. E. Stodter, USA Retired, a still active "Old Timer."

We should look at it this way. We are in the midst of a Cold War that is liable to change to a Shooting War any moment. We think too much about Nuclear War. The Nuclear War will be only one phase of the next war. The victor in that phase will still have to conquer the people of the defeated nation. Do you suppose for one minute that if we should happen to be defeated, which we won't, that we would lie down and submit to be invaded and to have communism forced on us? Not much! Our Army would defend our shores. Our people would go down to our gates with our rifles in our hands. Our mopping up war, and our smaller wars, which are also very liable to occur, must be done by our Army. The branch of our Army which comes into close personal combat is the Infantry. If you or your sons volunteer or are drafted the chances are three out of five you will go into the Infantry. The Infantry sustains the largest losses in war, and these losses are in direct proportion to its lack of training. The weapon of the Infantry is the Rifle. It takes longer to train a soldier in rifle marksmanship than in any other of his needed skills. Our Infantry has stated that it takes a minimum of 90 hours of personal instruction and 557 rounds of ammunition to train a soldier to efficiency in combat marksmanship. (Again see TRAINFIRE I.) There will be no time for that with the great mass of recruits we will have to infiltrate into our Infantry at the outbreak of war. We simply must train our young men before that by big bore target shooting. Let us get to work at once and do everything humanly possible to increase the interest in big bore target shooting. I have had my say.

Sincerely,
Townsend Whelen

COLD WEATHER SHOOTING

Dear Phil:

In the last issue of P. S., Stuhlschuter mentioned trouble with heat waves when shooting out of his shooting house in the

(Continued on Page Eight)

SENIOR RIFLEMAN

Col. C. E. Stodter, USA Retired, 3223 James St., San Diego 6, California, a former Director of Civilian Marksmanship, has many years of shooting activity behind him and is still at it. His present shooting is mainly with the fine old black-powder rifles (which he is shown shooting) and he is a regular participator in the matches for that type of rifles, which are popular in the San Diego area.

REMOVING PARALLAX IN SCOPE SIGHTS

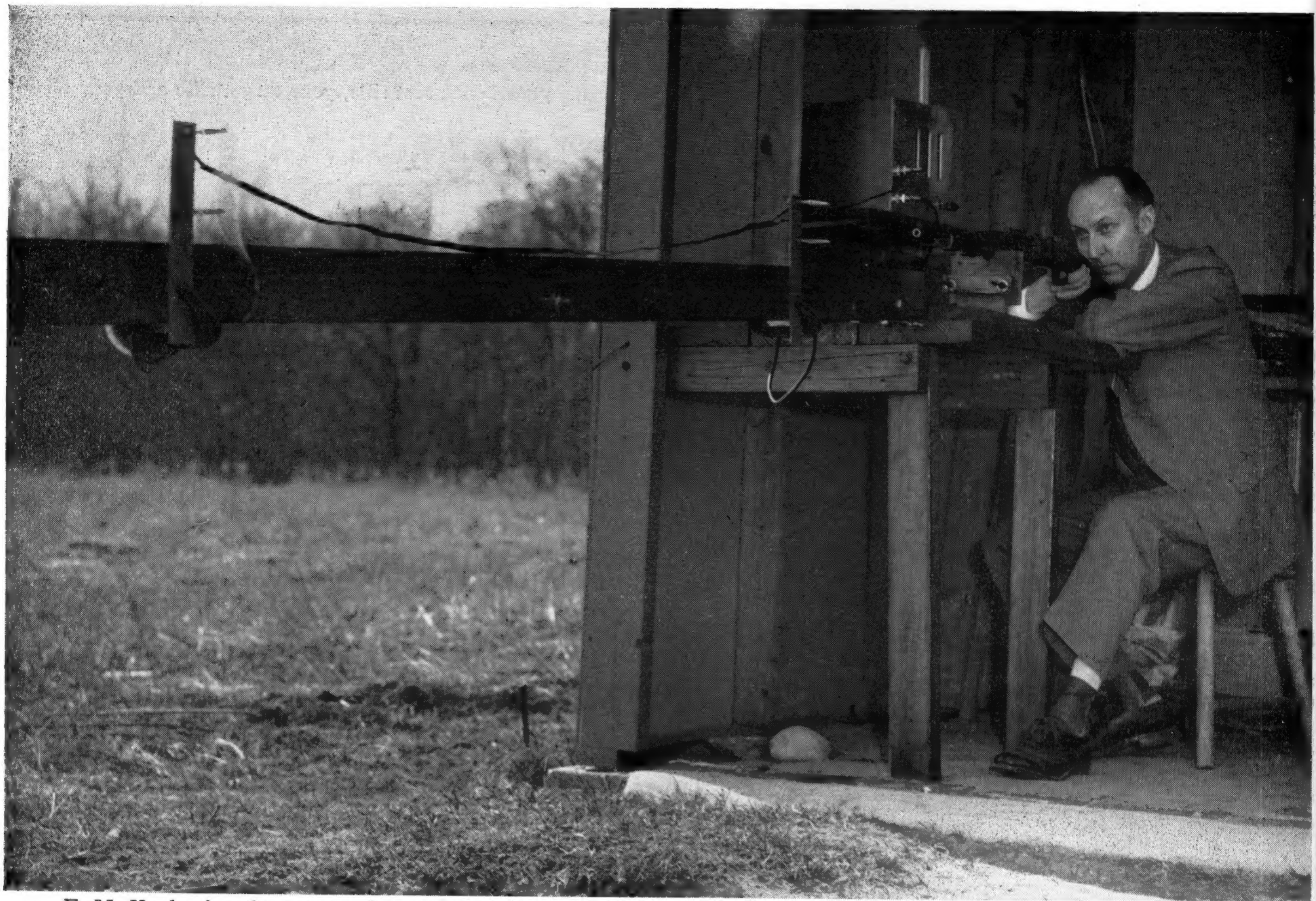
First, unscrew eyepiece until it is almost removed. Then look through scope at infinity (the sky in a northerly direction). Concentrate on **LOOKING THROUGH** scope and glancing at reticle intermittently while **screwing on** eyepiece toward objective. When the reticle first becomes clear and black, stop and lock the eyepiece in position. If in doubt, repeat this procedure. Do not move the eyepiece thereafter unless individual vision changes. People having astigmatism will find that both crosswires of the reticle will not focus and they should have corrective lenses. A dot reticle helps these peoples.

Next, place the scope on gun or fixed object, such as on a bench rest pedestal, and aiming the scope by placing the reticle on a dot, ring or some small distinct object at the range to be fired.

While looking through the immovable scope at target, **slowly** move your head from side to side. If the reticle moves with your eye (in same direction), move the objective lens toward the muzzle of the gun. If the reticle moves against the eye (opposite direction of movement of head and eye), move the objective lens toward the breech of the gun.

When the scope is correctly adjusted the reticle will remain on the aiming point when the eye is in any position to see through the eyepiece lens.

K. E. Smith
Lakeside, California



E. M. Yard using the counter chronograph built as the result of the combined pressure of several shooters on him to design one. These men have continued their cooperation in test and development work, seven of them having five of these instruments in use. Interest in their work and growing contacts are bringing increased pooling of facilities and findings.

BALLISTICS EXPERIMENTERS COOPERATE

By E. M. Yard

Several of the active workers in amateur small arms and load development are beginning to pool their efforts in joint undertakings. There has long been a need for this and for better communications among the more active experimenters in the field. Until now the interchange of ideas has been limited to such channels as personal friendships and occasional correspondence with random contacts. The interested, but experimentally inactive, members of the shooting world relied entirely on the printed word, as anything significant might chance to be published. Some of these latter could have been making useful contributions, even with very limited resources, had they been in touch with the stream of events. More important, the more competent and better equipped investigators could be working more effectively if they were better informed. This matter has been discussed often enough, and efforts have at times been made to do something about it. Until a group of the writer's associates put it to practice, such attempts did not seem to work.

In what may prove to have been an historic event in the efforts of serious experimental shooters to improve their communications, Mason Williams and James Schulhoff of Stanfordville, N. Y. met with E. A. Fisher of Califon and E. M. Yard of Trenton, N. J., in that Taconic hills village December 15th (1960) to discuss their common interests and the possibilities for combining the work of both groups. Williams and Schulhoff are the core of an informal area association of shooters carrying on an active program of arms and ammunition improvement. They have chronograph, range and tool facilities to make their developments effective. With an indoor (as well as several outdoor) firing point and a machine rest, they plan extensive testing.

Fisher and Yard (the writer) are two of seven men in New Jersey and Pennsylvania who have for some years successfully combined their abilities and shared their information, not only among themselves, but with any others serious enough about this business to be interested in the technical side of it. Perhaps the first evidence of the cooperative sufficiency and ability of these men was the combined pressure they put upon the writer to design and build the first of his counter chronographs to serve as the essential basic measuring tool in any cartridge development program. Thus was born, not only the group, but the means to know what they were getting with their experiments. They now have in use five of these highly accurate timing instruments for velocity measurements, five ranges available (three entirely private), four lathes and a variety of other machine tool equipment to support their projects. A key to their success in assembling facilities and a competent personnel has been a free exchange of ideas. There is no trace of form or organization whatever, but all test results are made known to other members of the group. In the case of any significant information, this is typed on reproducible paper, and copies are sent to all concerned (including many outside the area setup). This practice has produced participating contacts in many other parts of the country.

It was this pattern, which had proven so effective in one locality, that the December meeting in Stanfordville talked about applying on a more general scale. A common agreement about the desirability of better communciations is implicit in the fact of the get together, the main points to be resolved were choosing a method for disseminating information, and deciding to what extent organization was needed or likely to be helpful. The idea of a central clearing house to handle data was discussed and rejected. The amount of work in that approach make it impractical. No active participant could be expected to devote the time required to that task at the expense of his real interests. It was agreed instead that, at least for the initial stages of development, a copy of all test results should be sent to a key member (contact man) of each cooperating group, with additional prints to be available as needed. This would require the typing of all such test results on some form of reproduction paper.

On the point of organization, feelings were negative. The nature of experimentation is quite individualistic, and those serious and competent in this work are not interested in forms or procedures. Least of all do they tolerate even the suggestion of control or influence of their work. There would seem to be no need, nor a place, for a formal framework, but instead the need to freely exchange ideas and a pattern for doing so effectively. It was felt that even expansion of this scheme to other areas should be allowed to grow naturally as the result of better communications.

Thus, rejected too, was the thought of generating programs for investigation by several groups with any form of central control or direction. All experimental projects should develop from the initiative of the individuals, and their cooperation should arise from a mutual interest in that work. This means that experimentation would be locally oriented, even though, on occasion, strongly motivated and aided by ideas and cooperation from the outside. No interference with the freedom of any participant, even to the extent of an implied obligation to do something, could occur. This recognizes the fact that in research, the man doing the work is the only one usually qualified to decide what he will do to solve the problems he tackles. Advice or assistance, when requested, will help him, but not supervision or direction. It is a world of ideas, and ideas occur in the minds of men by spontaneous means.

A great many things will need to be worked out as this movement grows, and from our experiences to date we feel certain that it will. One of these is an effective means of letting those not participating directly know what is going on. That has been left for the moment as something to be taken care of by timely articles in **Precision SHOOTING** and by some form of periodic report of the general nature of the activities of the various cooperating groups, probably by means of an occasional column in the same magazine. A means to keep up to date a catalog of the facilities of participants needs to be worked out. Future meetings are planned to establish initial ways of handling these matters and others.

Phil Teachout has had a hand in all this, although he was not able to get to the meeting because of the snow storm interfering with last minute chores in getting out P. S. He had made arrangements to be there, because it was a remark in one of his letters to the writer that "If a half dozen or so of us could get together for a day or two we might be able to accomplish the start of some organization and a program for working," that triggered the reaction of Williams and myself to let's do it. We got together, and we can see no reason why what works for some of us cannot be expanded to take in others doing development work.

To answer a question that may have arisen in the minds of the less experienced when reading that the group in New Jersey have five chronographs as to why so many are needed in an outfit close enough to each other to be cooperating, and at the same time give some idea as to what these people are aiming at, here is one project being set up: To measure the muzzle velocity, to test the remaining velocity at measured range, and to determine the total time of flight on a single bullet. This will require the use of three chronographs at one time, as well as the cooperation of three men. Such checks will be quicker and yield better results than the use of averages, but are not practical for a lone worker or groups without adequate equipment. A previous article by the writer points out the large amount of work involved in successful load development. This requires apparatus and manpower. It pays in more and better work to pool our resources.

1000 YARD TARGET RIFLES

By Paul Wright

In considering a rifle for the long range matches such as the Wimbledon, Leech or Herrick 1000 yard affairs, several factors should be analyzed by the individual.

First, the bullets which are available. In the .30 caliber series, we have the finest selection obtainable. With one exception, no others should be considered. It is the only caliber in this country that the ammunition and bullet manufacturers have gone all out in developing 180 grain to 200 grain bullets with proper streamlining for the 1000 yard range. The above mentioned exception is Norma's 139 grain match bullet in 6.5 m/m. This is a very fine, well shaped and sharp pointed bullet. It is long, being near the same length that the .30 caliber match bullets are. It is as accurate and retains its velocity about equally well with the .30 calibers, which means it is equal in wind bucking ability, providing they have about the same velocity. The 6.5 bullet has less air resistance, but the .30 caliber has more weight. One approximately offsets the other.

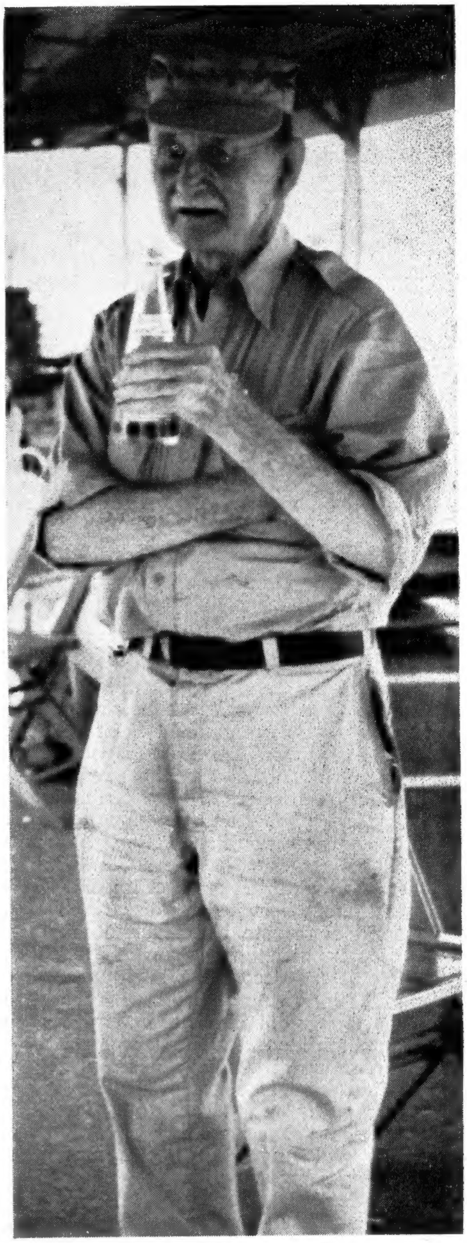
Second item is the rifle and cartridges. The .300 H&H in a 28 inch barrel "Bull Gun" weighs about fourteen pounds with scope and seems to be about maximum for the average shooter in a twenty-shot match at 1000 yards. This is in both weight and recoil. Of course there are good strong men of steel nerves who are not recoil conscious, who can and do shoot sixteen pound and heavier rifles and in calibers such as the Weatherby .300 Magnum. Some even shoot with no ill effects such cartridges as the Weatherby .378 necked to .30 caliber. I have fired such a rifle, but not in a twenty-shot match. It has a muzzle velocity of 3600 f.s. in a 28 inch barrel with 180 grain bullet. For myself and the average shooter, this cartridge is too much. One either has too heavy a rifle, or too much recoil for pin-point accuracy at 1000 yards. The Weatherby .300 Magnum at 3400 in a heavy bull weight rifle is about all I can handle in such a match. Now, if one could get 3400 to 3600 with the Norma 139 grain Match bullet, in a slightly lighter rifle, the comfort in handling the recoil would be to where even the small bore clan could handle it. This would make the ideal rifle for us average shooters.

Third, the specific cartridge. This cartridge should be of ample boiler room. The .30-06 makes an excellent cartridge case necked to 6.5 but gives only about 3000 f.s. muzzle velocity. The .300 H&H necked down would only give about 200 added feet per second, or about the same as the Winchester .264. I believe the .300 Weatherby Magnum necked down would give the required velocity. By using 4831 or machine gun powder, or a carefully worked out combination of the two, 3500 f.s. muzzle velocity could probably be obtained. Other slow burning powders available from Hodgdon should be considered, too.

Barrel life would be short, but with the best grades of Timken or stainless steel, accuracy life should be about 2000 rounds or more. This would last a good many seasons if the rifle was used only for that for which it was designed.

In a sporting rifle such a caliber would be ideal for a "plains" rifle either in Africa for antelope or in the western part of North America on any game we have. Excellent hunting bullets are made in 6.5 m/m here in the United States in all weights up to Hornady's great 160 grain soft nose.

The 9 inch twist is advocated. Winchester is said to have had to go to 9 inch twist in order to stabilize the 140 grain bullet in their .264 over hunting ranges. In a 6.5-06 I have used all bullets from 77 grain Norma to 160 grain Hornady in a 9 inch twist. The 77 grain had good hunting accuracy and with terrific velocity. As I have said, it is much easier to under-stabilize than over-stabilize. One example of this is our 10 inch twist of the 1903 Springfield, used originally with the 220 grain 1903 cartridge. Later they discovered it handled equally well the 1906 150 grain bullet. Today they find that the Sierra .30 caliber 110 grain open point is probably the most accurate bullet ever to be fired out of those 10 inch twist barrels and up to velocities of around 3300 f.s. This bullet is only half the weight the barrel was originally designed for. This is against all previous theory. But we are getting off on another subject, so will close.



P. E. "Phil" Brooks

SENIOR RIFLEMAN

P. E. "Phil" Brooks, P. O. Box 186, Greenbush, Mass., started his shooting career when target shooting meant shooting from the off-hand position and he shot in company with Dr. Hudson, Arthur Hubalek, Harry Pope and other leading shooters of that day.

In recent years Phil's main shooting activity has been coaching shooters in nearby rifle clubs and by passing on his knowledge of shooting he has helped develop some of Massachusetts' top offhand shooters.

The photo was obtained at the 1960 Northeastern Regional Smallbore Tournament, which Phil annually attends for some heavy visiting sessions.

NORTH CENTRAL OHIO LEAGUE

The seven teams in the North Central Ohio Rifle League started firing their gallery schedule the last week of October. As of mid-December the Ashland team was undefeated for the four matches fired. Galion had won three and lost one while Richland Gasco had won three and lost two.

The league course of fire is 10 shots in each the prone, kneeling and standing positions. G. Holmes of Ashland and W. Rhinehart of Galion had high scores to mid-December, each with a 293, Holmes including a possible 100 kneeling in his top score.

Competitors changing targets during a tournament on the Los Angeles Rifle and Revolver Club range, California. Note the little wind flags strung on the wire above the target lines and extending the full width of the range.;The scenic mountain background is impressive.

TOURNAMENT CIRCUIT

PACIFIC STATES FALL ROUND-UP

One of the most suspense-filled dramas in smallbore history was enacted on November 5th-6th at the annual Pacific States' Fall Round-Up on the Los Angeles Rifle and Revolver Club range, the protagonists being Herb Hollister, NRA Director from Boulder, Colorado and National Senior Smallbore Champion, and Gy/Sgt. James E. Hill, USMC, 1960 Olympic silver medal winner and California state champion. The climax came when it was discovered that the grand aggregate had resulted in a tie, both shooters compiling scores of 3197X256, with Hollister's score taking precedence over Hill's by virtue of the Creedmore system. Not only did Hollister emerge victorious, but both he and Hill received the genuine admiration of the 126 other competitors who witnessed this display of calm, skillful shooting under pressure. Both Hollister and Hill were shooting Anschutz rifles, another unusual feature of this tournament, Hill's being a free rifle.

The National Any Sight Champion, Capt. Donald Lockstrom, USAF, from Lackland Air Force Base, Texas, set the pace in the opening match, the Dewar metallic, with 400X33, followed closely by William Atkinson of Atkinson-Marquart barrel fame from Prescott, Arizona, with 400X32 and Hill with an identical score. George J. Stidworthy, Jr., also of Prescott, Arizona, won the 100 yd. metallic with 400X31, 1 X ahead of Hill who was 1st Master. Hill, steadily gaining momentum, took the 50-meter metallic with a score of 400X33 with Arthur Corwin, Culver City, Calif., 10 Xs behind, the only possibles for the match. As a finale, Hill won the 50 yd. metallic with 400X37 resulting in his being the winner of the metallic sight aggregate with a perfect 1600X132, a truly superb performance.

Other Metallic Sight Agg. Winners:

Herb Hollister	1598 X 116
William Grater	1598 X 116
Gerald Maloney	1597 X 110
Miss Gail Cauley	1597 X 110
C. J. Bender	1597 X 103

Flag raising ceremony at the annual "Fall Round-Up" smallbore rifle tournament (1960) on the Los Angeles Rifle and Revolver Club, California.

Saturday's shooting hazards consisted of intermittent chilling rain and dark, somewhat changing, light conditions. The host club was more concerned about the rain than the visitors appeared to be, for those top-flight veteran competitors had fired in rain before, whereas it was the first rainy tournament in the history of the Los Angeles Rifle and Revolver Club. The showers seemed, however, more of an asset than a drawback to good scores until the second stage of the 2-man team match when a storm of gale proportions descended on the range, making it impossible to spot shots on the 100-meter reduced targets. Many teams chose to go incomplete, feeling that the elements were prohibitive to creditable shooting. This made it even more noteworthy that Hill fired his fifth 400 of the day under such conditions. His teammate, Lt. Frank Briggs, USMC, firing last, did well to drop only 9 points in the last stage when visibility was so poor that spectators could barely discern the shape of the targets in the distance. This team won the master class trophies with 791X43; however, Gregory Conner, USMC and Peter Vogliano, USMC, winners of the expert class trophies, had the better score of 791X47.

Thirty-one possibles were fired in the any sight Dewar as skies cleared for the second day of shooting, and it seemed apparent that scores would run generally high. Arthur Corwin was the winner with

400X38, Lt. Frank Briggs, USMC, 1st master with 400X37, creedmoring William Atkinson. Hollister won his first and only match of the tournament by taking the 100 yd. any with 400X36, a skillful maneuver, as Hill demonstrated that he, after all, is only human and ice-water does not flow in his veins, as he dropped 3 points in this match, putting Hollister in the lead by 1 point for the grand aggregate. NRA Director Henry Benson of Salmon, Idaho, and William Grater were runners-up in the 100 yd. with 400X31 and 400X30 respectively. Henry Benson also took the 50-meter any with 400X36, as William Esperson, Oakland, Calif. and Lt. Frank Briggs came in second and third with 400X35 and 400X32. The pressure was really on at this point as Hill coasted with 400X31 and Hollister dropped a point. This put Hill ahead by 3 Xs going into the last match, the 50 yd. Excitement was at a high peak as the outcome of this battle of the champions was awaited. The match went to George J. Stidworthy, Jr., with a score of 400X38, while Hollister picked up precisely the required number of Xs coming through with a 400X37 to Hill's 400X34. Thus, the grand aggregate was tied up and both shooters are to be commended not only for their excellent shooting but also because the highest calibre of good sportsmanship prevailed.

It was a pleasure to congratulate Henry Benson as the winner of the Any Sight Aggregate with the lone 1600 (138 X). Henry was welcomed, along with Hill, into the Los Angeles Rifle and Revolver Club's 1600 Club and received a special gold brassard and membership card. He shot a Womack barrel with Remington 37 action, Lyman scope, and used Winchester EZXS ammunition.

Other Any Sight Agg. Winners:

Herb Hollister	1599X140
Wayne Raxter	1599X114
Lt. Frank Briggs, USMC	1598X133
Richard Burkhart	1598X130
Capt. Donald Lockstrom, USAF	1598X128

Grand Aggregate: High Ten

WINNER Herb Hollister	3197X256
Gy/Sgt. James E. Hill, USMC	3197X256
Capt. Donald Lockstrom, USAF	3194X254
William Grater	3194X241
Arthur Corwin	3194X220
Lt. Frank Briggs, USMC	3193X260
George J. Stidworthy, Jr.	3193X248
Henry Benson	3193X244
Miss Gail Cauley	3193X226
Gerald Maloney	3193X223

Merchandise was awarded to the various winners, the grand aggregate winner receiving a Polaroid Camera.

(It might be noted that the two high sharpshooter-marksmen hold master classifications which had not gone into effect on the dates of this tournament.)

California State Women's Champion, 16-year old Miss Gail Cauley, not only topped the feminine contingent and the juniors but ably held her own among the older, more experienced shooters. In lieu of accepting the 8th place Master class medal in the Grand Aggregate or the High Lady award, Gail selected the High Junior award, a portable radio-phonograph combination. The electric knife sharpener and can opener went to Miss Margaret Malm, the second high lady with a score of 3182X180.

Eight states were represented at this tournament. More BSAs appeared on the line than are usually seen in the West as their popularity is more concentrated in other sections of the country. Four members of the Air Force team shot BSAs. There was one Finnish Lion in evidence. Capt. Lockstrom shot a modified factory Remington 40-X with Redfield sights and Mark III ammunition. Hollister used two Redfield front sights (one for 50 yds. and one for 100 yds.) on his Anschutz with a Unertl tube and Iris disc. He used a Lyman scope and alternated between Winchester Mark III and EZXS ammunition. Hill used the Anschutz sights on his free rifle with Lyman scope and Mark III ammunition. Grater shot a Douglas 52-C with Archie Bell trigger, Redfield X-tube, Redfield International rear and Bell front sights, Lyman scope, and Mark III ammo. Ammunition company representatives were conspicuous by their absence preferring, perhaps, a warm fireside.

One of the highlights of the week-end was the buffet dinner on Saturday night which provided both camaraderie and the privilege of viewing movies of the U. S. rifle and pistol teams' trip to Rome and the 1960 Olympics, taken by and most descriptively moderated by Jim Hill. We marveled that he could pronounce the Russian names almost as well as he shoots.

Betty S. Duncan

NEW YORK 100 YARD INDOOR

At the November Metropolitan Rifle League's 100 yard indoor smallbore tournament for individual and two-man team events, Rans Triggs won the 40-shot individual event with a 400-34x to beat brother Fred Triggs and J. Lantelme, each with 400-33x. Carl Johnson, sharpshooting son of Eric The Swede, had 400-31 and Dr. Irwin Tekulsky 400-28.

The brother team of Irwin and Sam Tekulsky won the two-man team event with 800-65 to beat John Holle and Harry Stone with 800-53 (the only 800 possible team scores).

Five high in the individual aggregate were: Rans Triggs 800-66, Irwin Tekulsky 800-62, Harry Stone 800-51, Sam Tekulsky 799-59 and Carl Johnson 799-58.

Fifty-nine shooters participated in the tournament.

In the December match, same course of fire, 64 participated. Since it is the unusual which classifies as "news," it follows that Rans Triggs still holds the feature spot; he dropped a point and quite a lot of X's to finish 12th in the overall ranking of the individual match.

Fred Cole won the individual event with a 400-34. E. Clausen had 400-31, Irwin Tekulsky 400-30, marksman class V. Gyomber posted a 400-28, then came masters Fred Triggs, Harry Stone and Harold Slocum, each with 400-26.

Rans Triggs and E. Clausen won the two-man team event with 799-61, to beat Fred Cole and Walter Tomsen's 798-63. Eric and Carl Johnson had 798-50, as did the top expert class team of A. and D. Rosenblatt. The high sharpshooter class team of M. Boursquille and P. Chapman had 798-49 to beat the 4th high master class team.

Five high in the individual aggregate were: Fred Cole 800-68, Fred Triggs 800-53, E. Clausen 799-64, Rans Triggs 799-57 and F. Boelke (Exp.) 798-58.

CALIFORNIA HIGH POWER LEAGUE

Thirty-two competitors from the seven clubs in the Valley Shooting League fired a .30 caliber match on the Coalinga, Calif. range on December 4th.

John Kennett, Fresno, won the 200 yards standing stage with a 50-1V over John Harness, Selma, with 48-3V. Harness won the 200 yard rapid fire stage with a 50-5V over the 50-3V by Richard Leathers of Bakersfield. This put Harness in a tie with Kennett, each with 98.

One-two in the 300 yard rapid fire were Bob Lepper, Fresno, and Wm. Clough, Porterville, each with a 50-4V score.

Frank Avila, Lindsay, won the 600 yard prone stage with a 50-5V to beat Lepper's 49-5V.

Going into the 1000 yard stage, John Harness was in the lead with 196 points over Paul Stanley of Trona with 193 and Wm. Clough trailed with 189. Harness fired a 47 at 1000 yards to give him the aggregate win with his 243-21V tally. Clough won the 1000 yard stage with a possible 50-6V to move up to second in the aggregate with his 239-15V score. Stanley scored a 46 at 1000 yards to tie Clough's point score but 6 V's short (239-9V). John Kennett and John Weldon (Clovis) ranked 4th and 5th in the aggregate, each with a 238-12V score.

Winner John Harness shot a Winchester Model 70 target rifle with Redfield International sights and used Sierra bullets.

WESTERN OHIO RIFLE LEAGUE

The eleven clubs comprising the Western Ohio Rifle League in the Dayton-Springfield area shoot a gallery program of two sections, any sights and metallic sights. The any sight course of fire calls for 5 shots in each the prone and sitting positions, and 10 shots in each the kneeling and standing positions, for a course possible of 300. The metallic sight division shoots that standard 10 shot in each of the four positions course of fire.

In the any sights division, J. Cash of the Miamisburg team shot the top score of 295 in the third match and followed that with a 294 for high in the fourth match. I. Grilliot shot a 294 in the second match, another 294 in the third match and a 291 in the fourth match. Cash fired only the two matches and Grilliot three matches. R. Wright of the league leading Miami Valley Club shot in all four matches with scores of 291, 291, 294 and 292.

In the metallic sights division, J. Turnbull of the Springfield Club shot a 389 for high score to date in the first of the two matches fired, and followed it with a 384 in the second match. R. Wright shot third high 383 in the first match and high 386 in the second match, while his team mate R. Eisenlohr shot runner-up 386 in the first match.

The Miami Valley Club is undefeated in both leagues.

SOUTHERN CONNECTICUT RIFLE LEAGUE

The Southern Connecticut Rifle League of eight teams in the Stamford, Greenwich and Norwalk area has completed the first half of its season with the Rippowam Club undefeated and Cos Cob second with one loss to six wins.

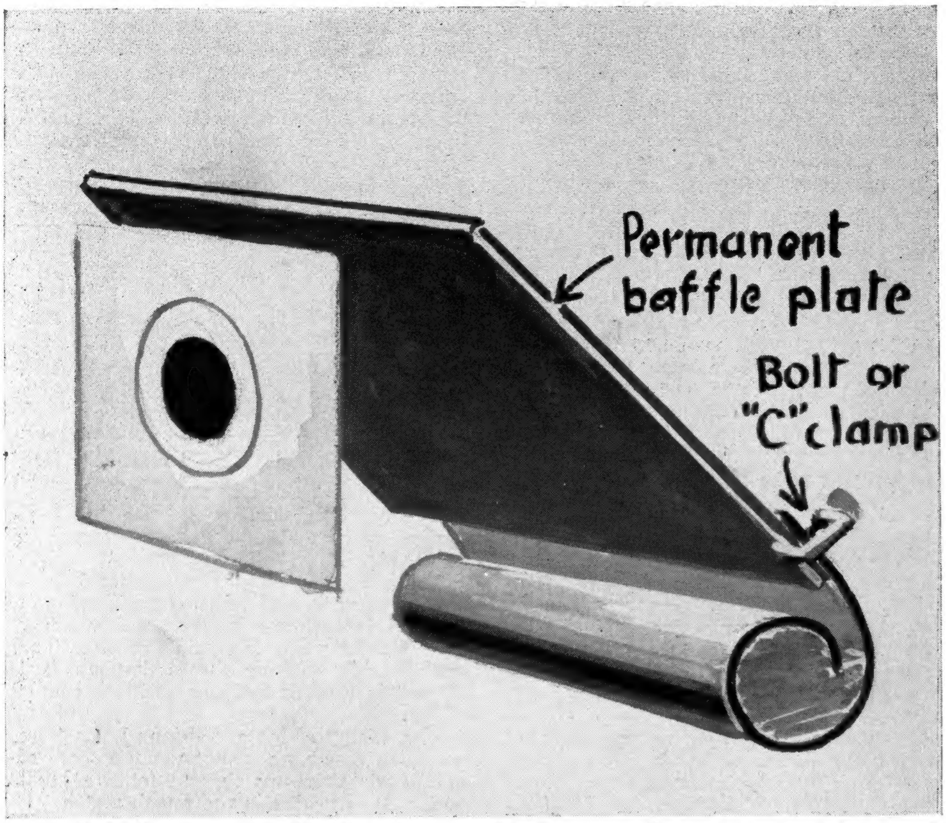
The league shoots the five shots in each of four positions course of fire. Joe Hemphill of Cos Cob has fired high score of 197. Tom Mitchell of third place Pitney Bowes has high average of 194.571 and Otto Kolb of Rippowam is second with a 193.8 average. Rippowam's Dorothy Buchalter has high women's average of 192.8.

NEW JERSEY LEAGUE

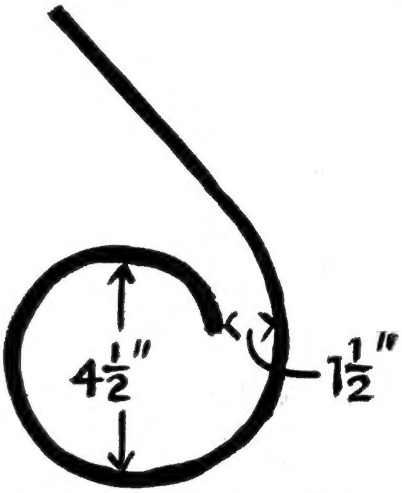
The New Jersey Smallbore Rifle League annual report has some interesting participation statistics for the 1960 season. A total of 209 shooters representing 18 clubs participated in some of the matches of the senior division, plus 170 in 14 junior clubs and 52 sub-juniors from 4 clubs.

The Madison and Roseland Rifle Clubs were tied at the end of the season with Madison winning the championship by virtue of a 5 point margin for the season's aggregate score.

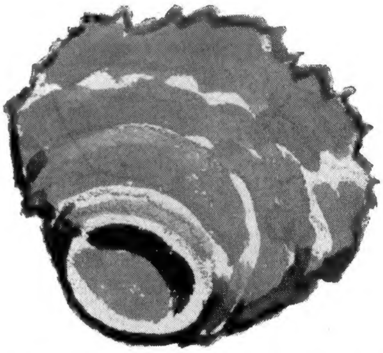
Fred Triggs had high individual season average of 99.75 and Rans Triggs was second with 99.66.



General set-up of baffle plate, target and bullet trap. Formed block of wood seals each end of the trap.



Approximate curve for bending of the iron plate.



.45 caliber bullet that has gone through the trap, and is recovered free of sand or impurities ready for remolding.

RECLAIM YOUR LEAD

By William E. Peterson

This applies primarily to handgunners, and especially to those who cast their own in the larger calibers. These unfortunates are usually on an unending hunt for lead from whatever source, because they shoot a lot of it in actual weight. A rifle shooter using a "Varminter" load may dispose of perhaps thirty or forty shots in the course of an interesting morning, but a pistol shooter, with his timed and rapid fire practice, can easily get rid of one hundred or a hundred and fifty loads in the same time, and his shooting kit on the way home is four or five pounds lighter.

Scrap lead is not too easy to obtain, since copper pipe has come into the picture in home building. Even the older buildings mostly have galvanized iron pipe. Old type, or linotype metal makes a fair substitute, but is too hard and should have some pure lead melted with it. The same applies to the lead backing of electrotypes used in printing. Pure virgin lead can be purchased of course, but it runs rather high in price, perhaps thirty or thirty-five cents a pound. When you consider that you get only about thirty .45 bullets from a pound of lead, it becomes apparent that it might pay to do something about saving lead for reuse.

If your backstop is merely a sandbank, it is not so easy to set up a reclamation process. But if you are shooting against an inclined baffle plate, as in some outdoor ranges and practically all indoor ranges, you can catch the lead in a simple device as shown in the accompanying illustrations. Most sheet metal shops can provide a piece of two foot square 18-gage iron, and bend it in a volute which will keep the flattened bullet circling around inside until it has lost its enthusiasm.

The 18-gage plate is a bit light for the job, but is about as heavy as can be handled in the bending rolls available in most shops making heating ducts or similar work. Meanwhile sheet metal plants making large tanks, stills or boiler shells, are not found in every community, even if they would bother with a small order. In any case the 18-gage material is plenty heavy enough when you want to take the bullet-trap down to dump the lead out of it, or to carry it away. It will stand up indefinitely under the glancing blows of even the heavier target loads in .38 and .45 calibers. Just remember that a direct hit, the bullet striking squarely on the metal surface, will dent the material. When properly placed in relation to the slanting baffle, this cannot happen, all bullets striking at a long angle.

One curious fact is the course of the bullets after they strike the 45-degree inclined baffle. They apparently do not rebound, but slide right down close to the surface of the plate. Thus an opening or slot of about one and a half inches in the trap, is enough to let them in.

After the iron is bent to form, wooden blocks cut to shape will seal each end of the trap. Welding on a piece of steel at each end is of course better, if you are set up to do it.

Methods of fastening the bullet trap in place will vary in accordance with the setup. Mine is simply suspended just behind the bottom edge of the baffle, supported by a light rope fastened to each of the upper corners. A "C" clamp or bolt could work just as well, although the downward drive of the bullets has surprising force, and an ordinary clamp may not serve.

In trapping your bullets, one advantage beyond the economy of saving the lead is in the uniformity of the reused bullet material. Whatever your formula, it does not change from lot to lot, as is liable to be the case when scrap lead is used, or even virgin lead with a proportion of tin unless the ingredients are very carefully weighed and mixed.

Letters

(Continued from Page Three)

winter. I had the same trouble and have tried various methods to overcome it. One year I used a windshield defroster fan and thought I had it. But after placing it at different angles, it did not seem to always work out well under all conditions. Change in conditions was caused by outside conditions and probably from heat in the building.

Last winter the old car battery was worn out, so I took a piece of cloth and thumb tacked it across the top of the shooting port. Cut a vertical slit down the middle and tacked on a piece of wood along the bottom of the curtain which would hold it down. Then all you need to do is stick the rifle barrel and scope through the slit. I use an extension tube on the target scopes. If a hunting scope were used it would be necessary to provide a means of assuring a slit opening large enough to see through.

This seems so simple I don't know why I didn't think of it first. It may already have been tried by some of your readers. It has worked well for me when outside temperatures were 20 degrees or more **below zero** and the temperature inside the house at 60 to 70 degrees above zero.

Scott Donaldson
Anchorage, Alaska

(Editor's comment: A safety hazard in the above, in some locations, would be the possibility of a person or animal wandering, unnoticed, into the line of fire.)

TREE GROWTH AND BULLET PENETRATION

Dear Phil:

I was very interested in Harvey Donaldson's account of his experience with the 7X57 Mauser and "the old pine tree."

I do not seem to be able to come up with any answer on the recent firings with the 7 m/m, but I sure can see why the British call these bullets SOLIDS. Any jacket that is .0625 thick comes mighty close to being just that when you consider the outside diameter of the jacket is around .283. Does not leave much room for lead.

There is one part of the account that Harvey did not repeat at this time, and that is the shots fired with the Krag and 220 grain bullets. Was "the old pine tree" FOUR FEET through at that time or is he referring to the present? If it was that thick 50 years ago it would seem that it might be somewhat thicker now unless they have a mighty short "growing season" in York State. If it WAS four feet through then, the Krag just might not go through now.

"Dan"—D. B. Hufnail
Rutland, Vt.

(Editor's comment: Harvey Donaldson was given an opportunity to reply to Dan Hufnail's comments, but Harvey's letter in reply was only facetious and, in the main, without information. He did, however, send one of those old 7 m/m full-jacket bullets from the old military loads for our examination. The "fold-over" of the jacket over the lead core on the bullet base does make a visible ring of jacket material which is .0625" thick, but when the bullet was partially sectioned it was found that the actual jacket wall was of only normal thickness for any bullet of this type. Dan's comment on tree growth is quite reasonable; any living tree would gain some increase in diameter in fifty years, or less.)

FURTHER "VIBRATION" COMMENT

Dear Phil:

I thank Mr. Audette for bringing to light the fact that barrel vibration does not occur until after the bending stress due to powder becomes smaller than the reaction which is due to barrel strain. I believe it is probable, however, that readers who note the wave trains in the pictures without learning their significance may carry away false impressions.

In the following analysis discussion of the Enfield does not appear, because the motion while the bullet is in the bore is in full accord with the equation and curves of my October article. In regard to the other cuts, it is noted that the curves start off sloping upward, whereas for the Enfield they start sloping downward.

Difference of behavior indicates difference of structure. The Enfield has a light barrel, and evidently this and the military stock bent as a unit, as might be a result of full length bedding. Both the Spanish Mauser and the 71 German rifle evidently had in common two distinguishing structural features. One feature was a stiff military stock; the other was in effect an absence of stock contact with the barrel from the breech to the fastening near the muzzle.

For the German rifle the analysis of events in reference to Figs. 1, 2, and 3 is what follows. The first event is the muzzle lift which is shown in the start of all three curves. In one part it was due to the upward rotation which followed the on-set of pressure build-up. The other part was due to barrel inertia which, tending to keep the barrel where it was, put a bow in the free mid-section. This caused the muzzle tip beyond the forward support to be further elevated, so that the total muzzle elevation in this period was the combined effect of two causes.

When the pressure on the bolt face was released, the only significant forces remaining were those of momentum and the reaction of the strain in the barrel. Momentum tended to lift the muzzle still higher. The strain reaction in the mid-section tended to straighten the barrel. The effect was twofold. The downward reaction on the forward support caused the mzuzle to dip or at least to hesitate in its upward flight. Upward momentum in the straightening barrel started a train of oscillations in the fundamental mode. At the same time, as the shape of a harmonic bend already existed in the combination of a downward bow and its associated reverse curve near the breech, the loosing of strain force started a train of harmonic oscillations. In these the direction of the first swing had to be downward at the muzzle, and in the figures it is downward.

Why in Figs. 2 and 3 oscillation starts before the bullet emerges is easily explained. According to Fig. 2, the black powder thrust on the bolt face essentially falls to zero in one-half of bore time, thereby releasing prematurely the strain reaction in the barrel. In Fig. 3 it does so in one-quarter of bore time. According to the time scale, the muzzle velocities are respectively about 400 and 250 f. s. With 200 foot-pounds allowed for friction, the discrepancies in velocity are roughly 100 per cent in respect to the charges. The reason for excessive velocity depreciation perhaps was due to fact that black powder does not burn satisfactorily in a partly filled case. As regards the vibration theory, Figs. 2 and 3 are extreme examples which might not occur in practical shooting.

The reversals before bullet emergence in Figs. 2 and 3 denote true vibration because they are **repeated** in **equal** intervals of time. According to this definition, the motion denoted by the curves in Fig. 1 of my October article is not oscillatory even though the direction changes once from negative to positive. It signifies flip if the bore time is such that the bullet emerges before the axis is crossed, and jump if emergence occurs after this event. No doubt Professors Cranz and Koch tested for deviation at more than one place in a barrel; but none of the cuts in the quote give a solid clue to the direction of bullet departure. One point in a line does not fix direction.

The vibration modes of Figs. 1, 2, and 3 may be easily imitated with a jointed rule. To do so, open out 6 joints, press the hand which holds the closed end against the body for firmness, lay the first joint slanting over a table edge, then with a finger press down in the mid-section. This corresponds to the condition which obtains for pressure on the bolt face. Now by slipping the finger sidewise suddenly release the pressure in the mid-section. Vibrations in both the fundamental and second mode ensue. The ratio between their frequencies is 1:6.2 because the first joint rested at a true node. The frequencies indicated in Figs. 1, 2, and 3 are about 23.6 and 111. That their ratio 1:4.7 differs from the natural one, it is evident that the place of the barrel fastening was not at a true node.

In the text of the quote are a few details which are open to comment, but I see no gain in argument over matters which are beside the point. I would like to see more contributions by Mr. Audette, because he always has something of importance to offer, and puts it in a literary way.

Yours truly,
Jesse M. Grigg
5951 South Tripp Avenue
Chicago 29, Illinois

LET'S TRY TO IMPROVE OUR LONG RANGE EQUIPMENT

By Fred W. Hallberg

Proper stock design for long-range big-bore shooting is a subject that everyone talks about but, like the weather, no one does anything about it. Note the stocks used by top grade small bore shooters. Rare indeed is a top winning score in an any-sight match produced by a standard "as issued" stock. Our Winchester Model 70 big-bore Marksman stocks and the new Remington big-bore 40-X stocks are quite perfect when used with a standard low-mounted receiver sights at 200, 300, and sometimes even 500 yards. But, add the height required by a set of Redfield International sights plus the necessary elevation for 1000 yard shooting and your cheek loses the firm contact with the stock that it must have if consistently accurate results are to be obtained at the long ranges. Mount a target scope on that rifle with the required elevation for 1000 yards and the rifle and your head will almost certainly part company. One need only to walk along the firing line, as I did this year during the 1000 yard Wimbledon match at Perry, to realize how very few of the rifles used were designed to produce top grade scores when fired by the average size man or woman.

It is true that under favorable weather conditions current equipment can produce 15 to 19-V possibles. But there is no reason why equally skilled shooters should not produce 30-V possibles if they had rifles especially designed for long-range high-sight shooting. During the 1000 yard Herrick match, one man on our team insisted on using iron sights on his model 70 in place of a scope because "he could shoot better with iron sights." Yes, he could shoot better but he could not see better. He could shoot better because he could more nearly assume the snug prone position he had been accustomed to at the shorter ranges. That same position simply could not be obtained when he used his high-mounted telescope sight plus some 30 minutes elevation.

The Russians have already recognized this problem of widely varying sightlines and have attempted to overcome it by designing elevation adjustments into the front sight. If, say, 30 minutes elevation is needed, the change in angle is made on the front instead of the receiver sight. Windage adjustments are continued on the rear sight. Changes in elevation angles remain the same regardless of whether they are made at the muzzle or at the receiver but adjustment at the muzzle pivots the elevation at the rear sight instead of the other way around as is the case with standard sights. This Russian system places the eye near the pivot point and, when so placed, the position of the eye and cheek relative to the stock will change very little when firing over widely varying ranges. In other words, considerable adjustment in elevation can be made without important changes in position. If such a system were to be adopted here, I would suggest the use of two detachable front sights of different heights to serve the areas of 200—300 yards and 500—1000 yards. Unfortunately the system appears impracticable for the telescope.

A good right-handed prone position employs a sling properly placed around the upper left arm and adjusted to permit a firm rest by the gloved left hand against the forward swivel or swivel stop. Strap tension is provided by the right shoulder resting against the buttplate. The desired amount of tension is determined by the length at which the strap is set. The right cheek rests snugly against the top of the comb and contributes to the dampening of body tremors that otherwise are transmitted to the barrel. The right hand has a firm hold on the stock but it does not actually furnish a major support for the rifle. The hold is just firm enough to permit a good uniform squeeze of the trigger. Actually, the position creates a support cradle consisting of the right shoulder, left elbow, and left hand trussed together by the strap. The act of comfortably resting the cheek against the comb not only supports the head in a restful position but it also adds the ligth, but firm, pressure which embeds the rifle between the right shoulder and the left hand. Remove the pressure of the cheek against the comb by raising the head to a higher plane and you lose the solid emplacement of the rifle in the cradle

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National Bench Rest Shooters Association, Inc.

NBRSA OFFICERS AND DIRECTORS FOR 1961

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Robert W. Hart (President)
300 West Fourth St.
Nescopeck, Pa.
Paul O. Gottschall (Deputy)
R. D. 4
Salem, Ohio
Brunon Boroszewski (Deputy)
Chestnut Ridge Rd.
Orchard Park, New York

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187-A Silverado Trail
Calistoga, California

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603 West Line St.
Minerva, Ohio

NBRSA MEMBERSHIP DUES:

Individual annual dues $5.00 (includes magazine subscription for membership term). Associate member (wife or husband, son or daughter under 18 years of age, of member in good standing—no magazine) $2.50. Life membership, $75.00. Annual club affiliation fee $10.00.

THE PRESIDENT'S CORNER

To all members and clubs of
the N. B. R. S. A. Inc.:

I have been elected as president of your organization for the year 1961. As such I am going to put in every effort possible this year to build and improve our organization, but remember this; it is not a one man show, and our rate of progress will be gauged by the help that you members give to your Directors, Deputy Directors, Secretary and President. As to your officers, I am sure they will do all they can to promote our organization and sport.

The first request I have to the members is for tolerance and understanding of your officers, rules, and each other. The major portion of the differences in the past came about when some one with a part of the information and a good imagination felt that they were not receiving fair treatment, and the cry was on.

If a ruling or decision happens to leave you in a minority group, be a good sport and if you think you are right, try to promote your case to a majority point of view. When new rules are made by your officers they are made after much discussion and thought as to what will be in the best interest of the organization and the majority of the members.

Members are requested to lend a helping hand to clubs in their locality when ever possible. We as an organization do not own or control any club, nor do we have any authority over clubs except in authorizing registered shoots and the rules under which these registered shoots must be run to qualify as such. The only other exception to this is the National Championship Shoots. The clubs holding these National shoots have additional rules to conform to. So, we are dependent on clubs to provide matches for our competitive shooting. Give them all the help and encouragement that you can.

Our member clubs should try to set up their schedule of matches and have the dates approved as early in the season as possible, in order that the dates may be printed in Precision Shooting far enough in advance to insure a maximum attendance.

A Winter or Spring planning meeting of the director, clubs and members of each region is of great benefit to all participating. This gives a perfect opportunity for setting match schedules to avoid conflictions, discussing problems and ideas for the betterment of our sport, and informing your director of your wishes for the coming year. A winter meeting has been held annually for many years in the Eastern Region and has been of great value to promotion in this

(Continued on Page Nineteen)

ACTIONS TAKEN BY NBRSA DIRECTORS

According to the minutes of the NBRSA Directors' annual meeting in Tulsa, Oklahoma, last August, the only shooting rule change for 1961 is for the Heavy Varmint Class rifles, and that is rather a clarification of the rifle specification rule than any essential change in the specifications. The rule as amended and adopted for 1961 is:

"Heavy Varmint Rifle: The rifle may be of any caliber, weight not to exceed 13½ pounds with scope, no limitation on power of scope. The barrel diameter must not exceed .9 inch at muzzle or 1.25 inch at breech and at no point between breech and muzzle shall the barrel be larger than it would if the barrel had a straight taper from muzzle to **within four (4) inches of the breech.** The rifle stock shall be a plain, commercial, conventional design, width not over 3 inches at any point, with no added guides or slides allowed. **Flats or beavertails may be added at any point on the stock to bring the stock up to the 3 inch limit."**

The course of fire for future National Championship Matches was changed to 200 record shots in a four day period instead of the past 100 record shots in a two day period. Five 10-shot record matches at 100 yards would be fired on each of the first two days, and five 10-shot record matches at 200 yards would be fired on each of the last two days.

It was decided that a trial run of the use of Stationary Backers (in addition to the moving backers) would be made at the 1961 National Championship Matches. The 1961 Nationals will be held in the Eastern Region.

The 1961 National Varmint Rifle Championships were awarded to the Eastern Region. (Locations and dates for the 1961 Nationals will probably be decided at the Eastern Region winter meeting in January and will be announced when known.)

The 1962 National Championship Matches for unrestricted bench rest rifles were awarded to the Mid-Continent Region, to be held at Tulsa, Oklahoma.

Officers elected for 1961 were: President, Robert W. Hart, 300 West 4th St., Nescopeck, Pa.; Vice-President, R. G. Berry, Pawnee, Oklahoma; Secretary-Treasurer, Bernice McMullen, 603 W. Line St., Minerva, Ohio.

Henry W. Barton, 1841 South Chautauqua, Wichita 16, Kansas, was reappointed as Chairman of the record target measuring and judging committee.

RECOGNIZED BENCH REST RECORDS AS OF DECEMBER 31, 1960

UNRESTRICTED BENCH REST RIFLE

FIVE SHOT GROUPS

Five shot group at 100 yards:—.063 inch. Shot by Harold Zieser at Johnstown, New York, August 30, 1958.

Five shot group at 200 yards:—.2383 inch. Shot by William B. Kerr at Altoona, Pa., August 9, 1959.

Five shot group at 300 meters:—.6735 inch. Shot by Samuel Clark, Jr., at DuBois, Pa., Memorial Day weekend, 1950.

TEN SHOT GROUPS

Ten shot group at 100 yards:—.1969 inch. Shot by Ferris Pindell at Terre Haute, Indiana, July 1, 1956.

Ten shot group at 200 yards:—.3830 inch. Shot by Harold Cole at Windsor, Illinois, July 25, 1959.

Ten shot group at 300 meters:—.9173 inch. Shot by Omar Rinehart at DuBois, Pa. August 30, 1957.

AGGREGATES

Aggregate of five 5-shot matches at 100 yards:—.1973 minute of angle. Shot by L. S. Glenn at Augusta, Ohio, July 19, 1958.

Aggregate of five 5-shot matches at 200 yards:—.2602 minute of angle. Shot by Clyde Yockey at Staunton, Virginia, October 8, 1960.

Aggregate of five 5-shot matches at 100 yards and five 5-shot matches at 200 yards:—.2873 minute of angle. Shot by Homer L. Culver at Staunton, Va., July 27-28, 1957.

Aggregate of five 10-shot matches at 100 yards:—.2758 minute of angle. Shot by Bernice McMullen at Augusta, Ohio, July 16, 1960.

Aggregate of five 10-shot matches at 200 yards:—.3684 minute of angle. Shot by Clair Hollingsworth at Buffalo, Wyoming, July 19, 1959.

NATIONAL MATCH COURSE; aggregate of five 10-shot matches at 100 yards and five 10-shot matches at 200 yards:—.3729 minute of angle. Shot by Henry W. Barton at Wichita, Kansas, September 28, 1957.

HEAVY VARMINT RIFLE CLASS GROUPS

Five shot group at 100 yards:—.117 inch. Shot by Edward M. Shilen at Dryden, New York, September 11, 1960.

Five shot group at 200 yards:—.359 inch. Shot by Arthur J. Freund at West Alton, Missouri, August 28, 1960.

Ten shot group at 100 yards:—.2953 inch. Shot by Raymond A. Novak at Detroit, Mich., April 20, 1958.

Ten shot group at 200 yards:—.7996 inch. Shot by Bruce Pheasant at Buffalo, Wyoming, July 19, 1959.

AGGREGATES

Aggregate of five 5-shot matches at 200 yards:—.3613 minute of angle. Shot by Edward M. Shilen at Dryden, New York, September 11, 1960.

Aggregate of five 5-shot matches at 100 yards and five 5-shot matches at 200 yards:—.3689 minute of angle. Shot by Edward M. Shilen at Dryden, New York, September 11, 1960.

LIGHT VARMINT RIFLE CLASS

Five shot group at 100 yards:—.235 inch. Shot by Joseph W. Looper at Altoona, Pa., July 12, 1959.

1961 BENCH REST MATCHES GULF COAST REGION

San Angelo, Texas: May 27 and 28; Texas State Bench Rest Championship (unrestricted bench rest rifles); (Mrs.) Marie Spencer, Box 1243, San Angelo, Texas.

San Angelo, Texas: August 12 and 13; Texas State Varmint and Sporter Rifle Bench Rest Championships; (Mrs.) Marie Spencer, Box 1243, San Angelo, Texas.

REED'S RUN CLUBHOUSE BURGLARIZED

The club house at Reed's Run Rifle Range, Augusta, Ohio, was broken into during the week following Christmas. Several hundred dollars worth of merchandise and W. M. Brown's loading tools were stolen. Mr. Brown (Box 66, Augusta, Ohio) has offered a reward for information leading to the arrest and conviction of the guilty party or parties.

T. H. "Ted" Boughton, the Rochester, New York, Gunsmith and benchrest shooter at the 1960 Johnstown, N. Y., bench rest shoot.

SHOOTER-GUNSMITH

Some bench rest competitors might be termed "Gunsmith-Shooters" while others could as well be termed "Shooter-Gunsmiths" (a case of which comes first, the chicken or the egg). Theodore H. "Ted" Boughton, 410 Stone Road, Rochester 16, N. Y., is one of the latter; a bench rest competitor who has turned to full fledged custom gunsmithing, with bench rest rifles his specialty.

The photo was obtained at the 1960 Johnstown Labor Day Shoot where Ted and Mrs. Boughton regularly set up temporary housekeeping on the range.

A .30 CALIBER BENCH REST RIFLE

Brunon Boroszewski of Buffalo, New York, shot a .30 caliber rifle in all his competition in registered bench rest matches throughout the 1960 season. He has supplied the following information about one of the rifles used and the results obtained with it.

The rifle has a 30" X 1.250", 4-groove. 14" twist barrel chambered for the .308 Win. cartridge, fitted to a F. N. Mauser single shot action, mounted in a modified '98 Mauser military stock. The scope is a B&L BALvar 6X24 with mount modified to rigid. (A photo of the rifle is on page 14 of our July issue.)

His load for all shooting reported herewith was 42.5 to 44.5 grains of 4676 powder, Sierra International open point boattail bullets, No. 210 Federal and C. C. I. primers.

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Aggregate averages for five 10-shot matches at 100 yards in three tournaments were .619", .669" and .656", an over-all aggregate average for the 15 matches of .648". Two aggregates for five 5-shot matches were .394" and .366"; an over-all .380" for the ten matches.

At 200 yards his aggregates for five 10-shot matches in four tournaments (in minute of angle) were .619, .663, .672 and .741; an over-all aggregate average for twenty matches of .674 minute of angle (1.348 inch). For 5-shot matches at 200 yards in four tournaments he had one group of .718 inch in one tournament; an average of .856 inch for two matches in another tournament, and five match aggregates in two tournaments of .964 inch and 1.034 inch; a 13 match average of .485 minute of angle.

All the shooting was done resting the rifle on two sand bags.

Brunon comments: "I sort of suspect that the biggest limiting factors have been the light weight of the outfit (16½ pounds total weight), commercial bullets, the use of two sandbags and some mechanical difficulty with creep between the rigid scope mount and the barrel alignment.

"The other rifle did not do so well, but I think it's no fault of the outfit. I changed stocks three times on this other barrel, including even an aluminum stock. I was unable to work the mechanical bugs out of the stoc, and rigid scope mount combinations. I feel, that properly tuned, this other rifle would have done just as well."

Brunon shot the rifle in the aluminum stock in the 100 yards matches at the 1960 Johnstown Labor Day Shoot, and I noticed at that time that his scope was mounted on the stock, instead of on the barrel. That, no doubt, was just one of the combinations he tried.

He makes a rather "rosy" prediction for what he will be doing with the .30 caliber in the coming 1961 shooting season, and we shall be watching with interest to see how good a "predictor" he is.

PHT

PROBLEMS OF WIND DOPING
By Oswald

(Reprinted from the December 1960 USAAMU NEWSLETTER, an authorized U. S. Army publication which is produced and distributed by the Information Section, United States Army Advanced Marksmanship Unit, Fort Benning, Georgia.)

The wind problems on the range are similar to those experienced in sail boat racing when you must try to anticipate any changes in wind direction and intensity by studying the shoreline and watching distant flags, trees, etc., which will indicate such changes. By so doing, you may be able to tack at a time which will give you an advantage over your competitors when the change in conditions actually does arrive.

Wind doping in rifle shooting differs in two significant aspects from wind doping in sailing. In shooting you are always stationary in relation to the terrain and you have the opportunity of "waiting out" changing puffs of wind between shots while losing only time. In slow fire prone shooting there is ample time, the loss of which costs you nothing as long as you don't overdo the thing and fail to get off a couple of your shots.

(Continued on Page Fourteen)

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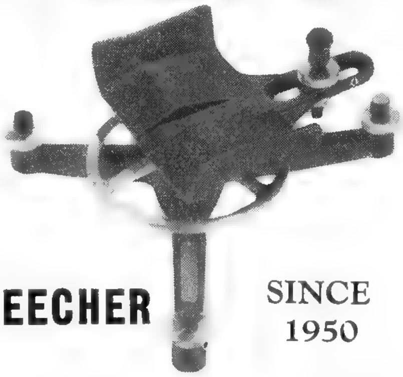

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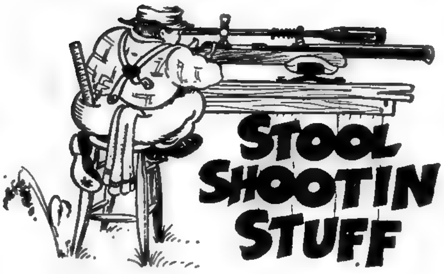

STOOL SHOOTIN STUFF

Dear Phil:

Before I get a lot of letters chiding me about the times that I have written about how mild and pleasant the winters are on Cape Cod, let me go on record and say that IT DID SNOW this year. As a matter of fact, it broke a thirteen year old record, so you see that storm wasn't one that I could sweep off the driveways. Some of the drifts were about as high as my Ford tractor and the snow was fine and packed solid from winds that were greater in force than this year's hurricane, Donna. Merrie and I just holed-up for the first day and the morning of the second day I bucked my way out to the highway with the tractor. From then on, it was just a matter of plowing a half mile of driveway several times so that cars could get in and out without chains. Hurricane Donna took down so many of the weaker trees that the 80 mile-an-hour winds occurring on this occasion didn't topple over so many trees on the power lines and we were not without heat and light, as sometimes happens during the storms of the winter months.

Merrie and I had just returned home from hunting in New Hampshire. This was the first year that we have hunted there in December when there was no snow on the ground. The leaves were so completely off the trees that great distances could be seen in the woods but we found deer mighty hard to see. Whether this was because there was really a shortage of deer or because the deep surface of leaves and the naturally shifting winds over a horse-shoe shaped series of mountains and ridges gave the hunters away in time for the deer to scramble for shelter, is difficult to say. The facts of the case are, however, that Merrie and I came home empty handed but had a mighty pleasant time for the ten days.

Late in the evening of the second day, Merrie was well camouflaged in a jumble of docks and a fallen birch top when a deer appeared in sight, complacently searching for beechnuts. When she first saw it, it was 150 yards off, but the standing trees made her feel that even though darkness was approaching, she should wait for it to work nearer. I never could have controlled my nervous system and waited long enough for that deer to come closer or appear in an opening, but just as darkness was really descending and I had already whistled to her to come out of 'them thar hills,' she got a chance to fire at about 100 yards.

She had previously had the scope on him but, a year ago having missed an easy shot because of a misfire occurring due to the bolt handle not being completely closed, she rechecked that and then moved her reticle from the neck to the shoulder. She insisted that the hold was good but frankly admits that the blob of light from the muzzle flash gave her some concern and momentarily kept her from seeing the first action of the deer. I can see her reason for complaint because those 7 m/m cases were really loaded pretty hot and there is a lot of flash as the bullets pop out of a 20 inch barrel at pretty close to 3000 feet per second. To her surprise, the deer suddenly appeared noisily running with head and tail down close to her waiting area but with no chance to shoot and, in fact, she felt that due to the noise and erratic run, there was no question but that he was mortally hit.

I've shot with her frequently enough to know that when she says she had a good hold, it probably was, but when we didn't see that fallen deer near by, I had her direct me to the spot where it was standing. By this time we were working with flashlights, and all we could do was leave a paper marker at the point where she thought the deer was standing and on the course that it took afterwards.

We were there bright and early the next morning with the skinning knife sharp and handy, but there was no deer to dress out that we could locate. I found hair with a slight amount of blood on it where the bullet had entered and more in direct line of fire for a distance of six or eight feet where the hair followed the bullet as it passed through. We searched through several series of ever widening circles for that deer and carefully combed every thick place and the banks of the brook and the pond edge, but we never located it. I wish some more experienced hunter than I would tell me where you could put a bullet through a deer at such velocity without leaving an easily seen blood trail. I know from many years of experience that they often travel far after being hit hard but this is the first one that I ever lost in such a manner.

I judge from your last letter that you had bad luck, too, but also had a good hunt and, after all, that is the most important part about hunting. Deer hunting certainly is a healthy sport and I often hear of how 'fit' one must be to take part in it. I readily agree that the better your condition is, the further you can range through the hills and through rough going, but deer hunting has always given me the best results when I didn't range too far and crept along at a slow and quiet Indian gait. Those fellows had to depend on getting close enough with bow and arrow. Certainly we ought to be able to do well with our long range guns.

Old timers tell me that within their life span, the habits of deer have greatly changed and they are becoming more and more difficult to hunt. On the other hand, we have rifles and sighting equipment that becomes more and more perfect.

The long range flat and hard shooting rifles of today are beginning to take a high percentage of toll as far as shooting accidents are concerned. This is not merely as many people suppose due to the carrying power of the bullet and thus going beyond the target and striking a person. The reason is that careless people are shooting at a distant movement or in many instances outshooting their own eyesight and ability to distinguish clearly line and color. The use of telescopes would help them to avoid such accidents and give them a great deal more enjoyment in their hunting. I readily agree that one needs a lot of experience or practice in their use for closely jumped and running shots. To my mind, a sportsman would be higher rated if he avoided some of those shots that frequently are missed and so often strike a deer in a spot that causes a long delayed mortal wound.

The novice hunter as well as a great many shallow thinking non-hunters are inclined to think of the bow and arrow shooter as more considerate of their quarry. There are two sides to every story and I have seen deer that I could well as not have shot with a bow and arrow, but those cases are few and far between and to thread an arrow between the trees of a standing timber lot to reach a deer in a vulnerable spot calls for accuracy with that weapon pretty much on a par with a bench rest rifle. The arrow kills by hemmorhage and the death may be a long suffering one on the part of the animal. These conditions are having a more frequently sickening effect on the public.

Such a case was brought to my attention this Fall when I heard of a deer that had been shot by hunters until their supply of arrows were exhausted. There is danger that this story may be garbled, but as it came to me the deer was struck by fourteen arrows and then the hunter had to use his drag rope to encircle the deer's neck and strangle it to death. In Maine last year I hunted in an area where a moose was travelling with two arrows sticking out of its head. A close friend of mine skinned out a deer with a 6 inch shaft section embedded near its backbone, and not far from where Merrie and I hunted, a deer staggered out on to the road, wounded by an arrow still embedded in its side as it met a more humane death, probably, from an oncoming car. These things should make us more determined to hunt humanely, which brings us back to guns and accuracy.

My most cherished holiday gifts have been the cards which so many of you folks have sent to me and if I missed one to you, it is because my hunting season was too hectic for me to get out all of the cards I intended. Among my presents, there was a 75 year old book from the wife of a shooting friend who long ago added it to his library. He has since passed away and has now joined many of the characters mentioned in the book. It covers mostly shooting in England as it was practiced from 1800 on, but naturally the accent was greatly upon the shooting and conditions of a period of approximately 25 years before the turn of the century. Some things amused me, and by others, I was amazed.

I found, for instance, that the purist benchrest shooter and the mechanical rest shooter did not invent calling one another hard names. Even before the flintlock boys had their controversies with their friends shooting the newer cap guns, the pattern must have been established. Apparently there was another time when hot arguments existed between the muzzle loading clan and the breech loading advocates. This was again followed up by the hot arguments and hard words between the boys using guns with exterior hammers and those using the hammerless contraptions that were just coming into vogue. A still later controversy occurred when choke bored shotguns were developed and it is clear that the cylinder bored gun shooters didn't easily give way to this new idea.

Much of the book covered the use of the shotgun on birds and I tried desperately to visualize the vast number of birds that were reared and shot. Of course, when gunners got together in groups of eight to a dozen, there were sometimes several thousand birds shot in one day and this condition at times continued through a three or four day shoot. We think we are facing quite an ordeal as we approach the National Matches but just imagine one shooter killing 780 birds in one day. You can readily see how essential his loading man was and why the passing of guns between the helper and shooter required such skill and alacrity.

One old shooter kept a very accurate log of his lifetime hunting and what a healthy life it must have been with no sickness as he hunted nearly every day for 40 years, at an estimated walking distance of 1½ times around the world. In that period, he shot some 38,475 birds or rabbits and his records indicated that he missed 16,766 shots. He must have been a pretty rugged guy because not for one single day was he confined to his bed because of sickness or accident. He used 750 pounds of powder and 4 tons of shot. (Merrie just asked me if he recorded how many nights he spent in the cellar getting ready for his next day's shoot) but I guess times were a little different then and some of those old fellows had a sizable list of employees keeping their equipment ready for the next day's shoot. They had mighty nice equipment, too, and it seems clear that their guns cost, even then, more than $200 a piece. I have some of those beautiful old guns and there is no doubt they were made in a period when quality and pride of workmanship was the rule rather than the exception.

The book is full of interesting old pictures taken from engravings and one of the ones that caught my eye was a gadget that was inletted into the fore end of a shotgun and by a simple twist of a knurled wheel by the thumb after each shot, recorded either the kills or the total shots taken. It was built to go up to a series of three digits and must have been a truly desirable item in those days but how useless it would be to us at this time since most of us have been able to progress to the stage of **counting** from one to five, if we reach our bag limit.

There is one thing crystal clear throughout the book and that is that gun nuts have never changed very much. Back in those days, new things were being developed and up to the time of reading the book, I had been pretty much of the opinion that multi-barreled guns, such as the drillings, were more or less a new development but I read where one old fellow who had a four barreled gun back in 1800 was complaining because he had not yet achieved the "ultimate in accuracy" by getting four birds from a high flying covey with four shots.

He probably purchased that gun and showed it to his friends with the same enthusiasm before the opening season as we do when we bring out a new benchrest monster before our shooting season. It is very evident that he, too, went home day after day talking to himself and to his Deity when he found that his new gadget hardly excelled his old one and probably frequently didn't equal the results which his competitors were getting with their last year or older model. As a matter of fact, the book speaks frequently of how the London makers are continually bringing out new ideas that give the sportsman a yen for a gun of a later model.

The impression may be given that all shooters could bag hundreds of birds in a day but such was not the case. Such bags came only from organized hunts of very wealthy sportsmen who undoubtedly supported hundreds of families all year long caring for the equipment, the birds and the terrain, and it seems quite clear that few birds that were shot ever went to waste as they were all used on the table, and great pride was taken in clean kills as a result of the shot striking mostly in the head and neck area. This is sort of tantamount to our getting a nice little .200 ten shot group at 100 yards and noting how round the group is or that five or six of the ten shots went into a little portion of the group that was .050.

There was a variation of shooters, too. Some apparently were very courteous and sportsman enough not to chide the adjacent gunner because of a missed bird. The better shots waited until the game was at considerable distance, but there were certain ones who boastfully called attention to their longer shots or occasions when they hit a bird that the adjacent shooter had missed. Even human nature hasn't changed very much among shooters. Cordially yours,

Ernest Stuhlschuter

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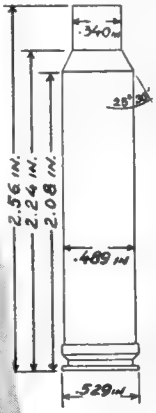

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BEGINNERS CORNER

By Robert F. Stinehour

In the last article I wrote, which was about mirage, I said that mirage would move a bullet. I have been reprimanded for this statement by our editor, and probably will be by others. Of course I am not such a beginner that I do not know that actually the target image is displaced by the mirage, rather than the mirage moving the bullet.

One of our largest scope manufacturers has for some time had a full page ad in many of the national magazines, stating that their variable scope **eliminates** mirage. To my knowledge this statement has never been questioned, yet how foolish it is, for we all know that the mirage is there, whether we see it or not. A scope that would eliminate mirage would be worth a fortune.

Certainly my statement was not true, if one wants to be technical. It has been my experience that many are too technical, and many of the most "technical people" in the bench rest game are usually way down in the aggregates.

Many "technical articles" are way over the heads of most of us, and if we could work out the long equations we would learn very little. A favorite expression of one of my favorite shooters is; "An aeronautical engineer can prove that a bumble-bee cannot fly."

If readers do not understand what one writes, the writing is in vain, hence my statement that the mirage moves the bullet. I believe this statement would be more understandable to more readers than going into a long spiel about light bending and such.

In the last issue of Precision Shooting there was also a very controversial article; "The Ideal Hunting Rifle," by Paul Wright. I do wish that Mr. Wright could take his glass-bedded rifle to both Africa and Alaska, and perhaps he would change his opinion of glass bedding, as many have. A rifle I stocked over a year ago made 5 one shot kills on buffalo in Africa this past summer, so I know a little of the conditions a rifle is up against in that climate. We have conditions extremely reversed in our Catskill and Adirondack hunting, also.

Neither glass nor **any finish** will completely eliminate moisture from a stock. So, it is common sense in the "Ideal Rifle" to have a stock with proper grain structure. Few factory stocks have this quality as the **big percentage** of them are board sawed. In board sawing the grain invariably has to be stronger on one side of the stock than the other. Hence the movement, and the glass will not stop this movement entirely, if at all.

In my opinion the ideal rifle should have a properly sawed, dense grained (preferably French walnut) stock, with the action **properly** bedded in wood. An alternative is an all walnut laminated blank such as supplied by Owen Laminated Stock Blanks, Watkins Glen, New York. These blanks are made in varied thickness of ply, and are probably the **most stable** stock available today.

For the ideal rifle, my choice of actions would also differ from Mr. Wright's. When one free floats a barrel it is essential to have a strong action on a sporter, as well as on a bencher. The Mod. 70 rates way down on the list when it comes to actual strength. It also necessitates removing much more wood from the stock, thus weakening the stock in the action area, where we need the strength most.

My choice would be a Remington 721 for a long case, and a Remington 722 or a small ring Mexican Mauser for a shorter case. These three actions are much stronger and have much more bearing surface to wood, thus the bedding will **hold** better.

Regardless of the action used, my ideal rifle eliminates the factory floor plates, or guards. By using a small diamond escutcheon for the forward guard screw and a Krag trigger guard, one gains much strength in the wood through the action area. By inletting the magazine follower in the wood and sacrificing the capacity by one cartridge, the wood is left all the way from the front guard screw to the back one. With this wood solid through the bottom of the magazine, ¼ inch thick or more, the stock is very strong. The "lost" cartridge will never be missed as the chance to get more than 4 or 5 **aimed shots** does not come along once in a lifetime.

As for pushing an upset lead slug down a barrel to check its uniformity, as Mr. Wright recommends, **don't try it.** I'll wager there is not a barrel maker in the country who has not had barrels returned, ruined, from doing this. If I could not trust a barrelmaker to give me what he thought was a good barrel, I would buy somewhere else. If a person has "feel" they can get a pretty good idea of a barrel's uniformity with a pretty tight patch, and a lot less dangerous.

Mr. Wright's statement that good gunsmiths are hard to find, I will agree with heartily. I believe this is mainly because most people like to eat. For the amount of knowledge and hard work required, the average gunsmith is the lowest paid trade going. My hat is off to all full time gunsmiths, be they good or not so good.

Problems Of Wind Doping

(Continued from Page Eleven)

I set about to determine just how "wind dopes" operate on the rifle range and discovered a strange assortment of tricks. There would be a fellow plucking blades of grass and throwing them into the air to observe their flight. Another would have a light thread fastened to his front sight which acted as a wind sock. The chap down the line would be following puffs of smoke from a cigarette or pipe. There are prefer watching the grass between the fir- some who can keep one eye on the target and the other on the range flags. Others ing point and the target. A very prominent smallbore coach appeared on the range at Camp Perry one year with a ping pong ball suspended from a string fastened to an inverted "L" shaped frame. This indicated very effectively light wind changes.

Another trick, on a hot day, is watching the direction and speed of the heat waves (mirage). Under some conditions these can be picked up with the naked eye. But there is seldom any trouble, after a little practice, in picking them up with a spotting scope and determining whether they are running from the left or from the right. Some prefer to have their scope slightly out of focus to aid in seeing the heat waves. Wind changes under some conditions can come so fast, however, that before a fellow can get his eye away from the spotting scope and squeeze off a shot the dope is no good. Heat wave dope is one of the best at the particular instant that it is observed because it seems to indicate the average wind condition over the entire range. Heat waves, or mirage, have an evil effect, however, in that they distort the bullseye and make it appear egg-shaped. The illusionary black is on the side away from the wind, displacing your shot further in the direction in which the wind is blowing. It works against you rather than compensating for the wind.

The wind most difficult to cope with is the light "fishtail" wind which comes in over your back and blows almost straight down the range, switching from a few degrees to the left to a few degrees right and back again. These winds may be so faint that it is difficult to detect them by any of the above-mentioned methods and this is what makes them all the more tricky. I have even seen shooters wet the tips of their ears so that they could feel better a switch from one side to the other. These "fishtail" winds were common at Camp Perry. It always seemed to me that they could be expected around late morning and early afternoon.

There are two fundamental methods of applying wind dope. One way is to make allowance for a change by adjusting your sights, or by holding off. Another way is to wait out the change until conditions return to where you know exactly how to cope them, and then pour 'em in fast. The latter method has its disadvantages because while you are waiting your barrel is cooling. Most shooters prefer to keep the lead coming through at reasonably regular intervals. There is also such a thing as the wind not changing fast enough or so erratically that you cannot settle on any standard condition. In this case, you'd better try a combination of both systems and try to wait out some of the extremes. At the beginning of a match I prefer to adjust my sights

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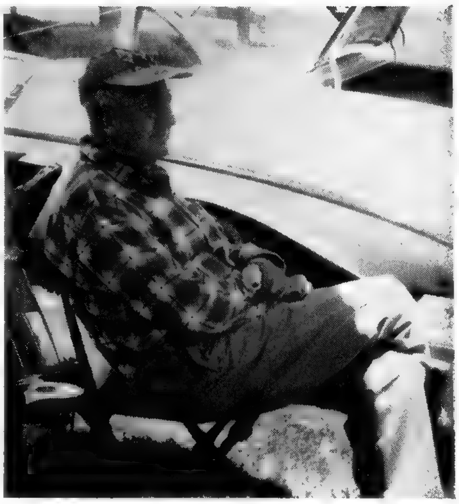

"Andy" Brower

SENIOR RIFLEMAN

Andrew J. "Andy" Brower, Roxbury, New York, is one of the many senior riflemen who have turned to bench rest shooting to continue their activity comfortably. The following is a quote from the August 1952 SHOOTERS NEWS, reporting a small bench rest match at Johnstown, New York:

"Andy Brower of Roxbury, N. Y., who started his shooting career in the famous old Zettler Gallery in New York City, was another shooting his first bench rest tournament. He was shooting a highwall Winchester varmint rifle chambered for the original Lovell .22-3000 case. During the scheduled matches he shot well, but not well enough to worry the winners greatly. Before starting the extra series his shooting friend persuaded him to change his front rest from the barrel to the forearm. Whether or not the change of resting was responsible, Andy did win one of the extra series matches and was runnerup in another, getting the thrill of winning and gaining confidence in his rifle."

The next Spring, Andy was back at the matches with a full-fledged bench rest rifle and he has been a regular and enthusiastic competitor in bench rest matches ever since. The photo was obtained at one of the 1960 bench rest matches in Plainfield, New Hampshire.

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for what appears to be the average wind condition. When firing my record shots I would then hold off for changes if I was using a scope sight. I do not hold off for iron sights unless allowing for small, rapid changes in wind. I believe that most shooters allow for major wind changes by making adjustments on iron sights. At any rate, don't try holding off with iron sights in a match until you have experimented with this technique on your home range.

Here are some suggestions which helped me along in this wind doping business and may help you:

Theoretically, a twelve o'clock wind will make your shots go low; a tail wind will make them strike high. Don't depend on this completely however. Don't try to arbitrarily allow for elevation until you know the particular range on which you are firing. Here is where terrain enters the picture and you may be fooled.

After firing a few targets on calm days, determine the zero windage reading on your windage scale. Record this and then learn to judge your wind and find out how much you have to allow for various conditions. This helps develop your wind judgment.

Use the clock system of determining wind direction. Imagine yourself lying in the center of a clock with your rifle pointing toward twelve o'clock. A wind straight from the right will be a three o'clock wind, etc.

Then, learn what different wind velocities feel and look like. A wind of two or three miles per hour is hardly perceptible while a five mile per hour wind enters the gentle breeze class and may be felt on the face. When the wind reaches ten miles per hour tall grass is waving, leaves are constantly rustling and flags are waving. A wind of this velocity is commonly termed "fresh." At fifteen mph, dust will blow, grass will move violently, small branches will bend, and flags will be well extended. When the wind hits twenty mph, put extra fasteners on the target and adjust your chin straps.

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Let's Try To Improve

(Continued from Page Nine)

created for it. Our problem is to create a rest on the big-bore bolt-action rifle that will support the cheek against that high sighting plane. However, to properly accomplish it, more is entailed than just adding a cheek piece to an existing rifle.

Let us start with a Pattern 14 British .303 action and build a rifle especially designed to overcome the shortcomings of the rifles available today. I suggest the Enfield because I consider the Pattern 14 (British) and the Model 17 (American) actions quite superior as far as all-around adaptability is concerned. It will be chambered for a necked-down .30 caliber version of the Winchester .338 or the ready-made Norma .308 Magnum. Reamers, loading dies, etc., are more readily obtained for the Norma Cartridge. Both cartridges are belted and both have the approximate overall length of the .30/06 cartridge. For the belted cartridge, the .303 bolt-head will require a minimum of machining and, if a magazine is desired, the original .303 magazine will require very little altering. The right ear of the receiver bridge will be removed, the slope on top of the bridge machined horizontal, and all edges nicely broken with a small radius. The thin part of the bridge over the base of the bolt handle is removed. The left ear will remain the rear iron sight. You might eventually standing because it will support the base of want to trim the ear to match the sight base but for the present leave it alone. I now have three .30/06 target rifles based on the Enfield action and on all three the left ear is employed to support modified English Parker-Hale sights. These sights were converted and adapted either by myself or by a local gunsmith friend. At the time the rifles were built, the Redfield International sight was not available and the English sights were the only ones that could properly be applied to the job. Parker-Hale sights are rugged and strong. The only criticism I have of some of them applies to their ½ minute adjustments. I prefer ¼ minute adjustments. A base for the Redfield International sight can be readily machined to fit the outside of the left ear and it can be placed so as to bring the peep in line with the height of the telescope. It is possible that Redfield will be agreeable to furnish a perfectly flat base for that sight. The Anschutz and, I believe, the Walther people in Germany also make sights that are adaptable to telescope height and which are mounted on a base stradling the receiver from the ring to the bridge. Such sights are most easily mounted on standard Mauser actions although special adaptations are always possible. Tube sights that utilize standard target scope mounts are also available. If Anschutz, Walther, or tube sights are to be used on the Enfield, the left ear can be eliminated. However, do not be hasty because you may find that you prefer an unobstructed bridge.

Three stock designs are available to achieve a high sighting line. They may be described as the grooved, the offset, and the tunnel type buttstocks. On all three the heel at the buttplate should be at least as high as the highest point of the cheekpiece. That is to say the cheekpiece or comb (one and the same thing as far as these rifles are concerned) must not have any drop in the direction of the heel. The line should be straight and parellel to the bore. If a higher heel is required, an adjustable buttplate such as is used on our international rifles can be installed.

The most easily constructed but the least comfortable of all three stock types is that with a deeply grooved comb to accommodate the bolt when withdrawn. The offset type is also easily constructed but requires special sights and bases that provide a sight line one inch or so to the left of the bore. This method has been used to some extent on some international match rifles. The comb and cheekpiece rise to the left of a small hollow that permits the bolt to be withdrawn and the rifle cleaned from the breech. I prefer a center sight line and will therefore choose a tunnel type stock. With such a stock it will be necessary to raise the sight line another quarter inch but, within limits, a high sight line will also reduce the effect of heat waves rising from the barrel. The comb will curl over the fully extended bolt and provide an opening large enough to permit complete withdrawal and it must be straight enough to permit cleaning from the breech. The curl will continue all the way to the butt and will necessitate some modification of the buttplate to conform. If the buttplate is adjustable, the adjustable half can be made to slide over the opening in the fixed base. No part of the curl should be less than ⅜ths of an inch thick because if it is too thin it will also be too fragile. Every gun is dropped at least once in its lifetime and if it should fall on its hollow cheekpiece something might break.

The barrel will be heavy and I would choose a 12 inch twist. 27 inches is a very good length when used with a bolt action. Only on a falling block action does a 30 inch barrel seem practical. Long barrels reduce the muzzle blast which bothers some shooters but, on windy days, long barrels are more difficult to hold. If the magazine is retained, it should remain at full capacity. The trigger guard should be straightened and this will require a longer front guard screw. The deep magazine will require more wood in the area of the action, which is all to the good, and it will also permit use of a heavy forearm similar to that of an international match rifle. It will extend from the trigger guard and floor plate in a line parallel to the axis of the bore. The pistol grip will be full and steep and with a swell that conforms to the hollow grip. The stock line from the pistol grip of the palm located on the right side of the to the toe will be almost parallel to the bore. There will be no thumbhole. With such a stock, the recoil thrust will be more nearly straight back and will reduce the pivoting motion (bouncing barrel) with which we are all so familiar.

Although much of what has been said has already been applied in the small bore game, it will be recognized that major problems are involved when transposing such ideas to the big bore rifle. The small bore rifle has a smaller bolt and a relatively short bolt-throw which simplifies the construction of a stock designed for high sighting lines. The important thing is that we know that such a stock works. The small bore shooter has proved the point many times and there is no real reason why a rifle fired at 1000 yards under favorable weather conditions should not produce the same relative groupings that the small bore shooter gets at, say, 100 yards. It may be surprising to learn that a 20-V possible has been unheard of in the Wimbledon 1000-yard classic since World War II. As I see it, the reason lies in the fact that much of the equipment used is makeshift—makeshift in the sense that rifles designed for use with low sights at 200 and 300 yards are suddenly converted to a radically different sight-line by the addition of a scope plus necessary elevation. With proper equipment, there is no reason why 30-V possibles should not become common in 1000 yard shooting. It can be done. Groups fired at 1000 yards from Ordnance accuracy equipment leave sufficient margin for human error.

Big bore shooting is badly in need of new ideas and new procedures. Perhaps we should look around a bit and not hesitate to borrow ideas from other branches of the shooting game. The more we look, the more we become aware of the inter-relationship of all the branches. All contribute to the general development of shooting and all require our interest and support even though we do not personally partake of them.

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MECHANICS OF MARKSMANSHIP

(Reprinted from the December 1960 USAAMU NEWSLETTER, an authorized U. S. Army publication which is produced and distributed by the Information Section, United States Army Advanced Marksmanship Unit, Fort Benning, Georgia.)

(Chief Warrant Officer Herbert R. Atkins, Jr., author of our December article, is one of the Army's foremost small arms specialist. He entered the Army in 1936 from Holdenville, Oklahoma, and served throughout World War II, earning the Bronze Star for Valor and the Combat Infantryman's Badge. Chief Atkins joined USAAMU in December 1957 after serving with the MAAG in Korea. Earlier this year, he was cited by Continental Army Command for meritorious service rendered as Ordnance Officer of the USAAMU, the post which he holds today.)

The continuing improvement in scores fired by Army shooters in service and international competition is due in no small part to the progress made in weapons and ammunition production. The past three years have been momentous ones in the development of quality control in the manufacture of match ammunition and the introduction of radical new concepts in the accurizing of rifles and pistols.

In 1957, the Advanced Marksmanship Unit was instrumental in bringing about the introduction of Frankford Arsenal match ammunition into the national marksmanship stream. The overnight improvement in National Match scores provides ample proof of the significance of the innovation.

The M-1 rifle itself has been a more efficient weapon through the application of new accuracy techniques. Three years ago, a service rifle capable of firing a seven-inch group at 300 yards was considered of match quality. Today, any service rifle which cannot consistently group five inches or less is rejected. Glass Bedding, hand fitting, uniform operating rods, and numerous other precision features have made the difference. American-made international free rifles now in the hands of AMU shooters, firing handloaded Army ammunition, will group two inches or under at 300 yards.

THE M-1 RIFLE

The National Match M-1 Rifle will soon take its place with the 1903 Springfield on the shelf of superceded weapons. Only a limited number of shooting seasons remain before the old Garand will be replaced by the more refined M-14 now being issued. The techniques and principles of accurizing which have been developed for the M-1 will not be wasted, however, for they will apply as well to the M-14.

For the present, the M-1 is still with us, so for the benefit of you who want to accurize it, here are a few hints. Of primary consideration in accurizing the rifle is the barrel. We have found that both the barrel and bullet must be of a certain diameter for maximum accuracy. The Frankford Arsenal (FA) match bullet is .3081 to .3082 inches in diameter. A barrel, for best results with FA then, should have a diameter of from .3079 to .3081 inches. Correct size relationship between bullet and barrel will result in increased accuracy and longer barrel life. Generally, 1200 to 1500 rounds will result in .0001 inch barrel wear. The barrel will usually maintain fairly good accuracy until it reaches a diameter of .3084. Thus, by determining the original size of the barrel, one may determine both the ex-

(Continued on Page Eighteen)

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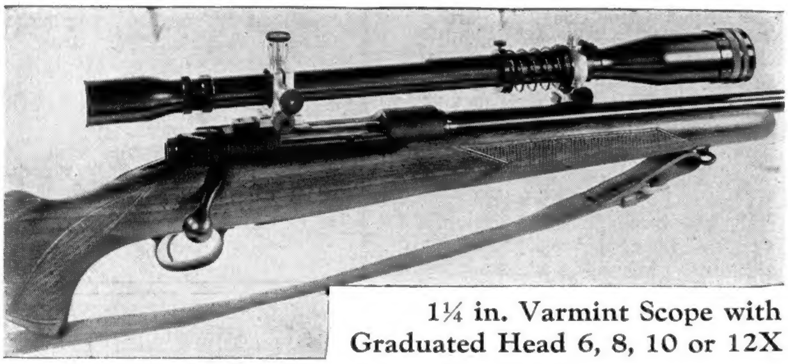

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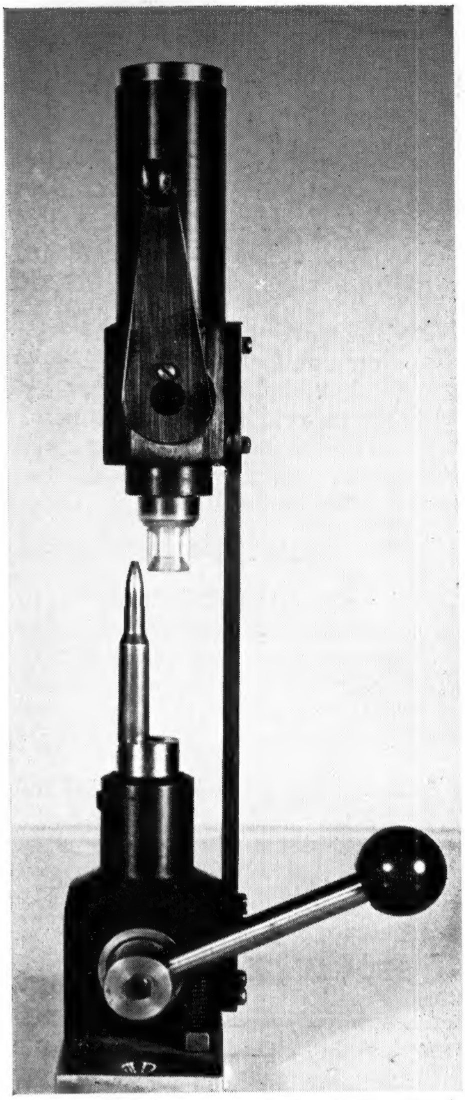

A reloading item designed by Ferris Pindell and Floyd Gibson of Richmond, Indiana. Ferris Pindell's address is: 427, South 23rd St., Richmond, Indiana.

Mechanics Of Marksmanship

(Continued from Page Seventeen)

pected accuracy and barrel life of the rifle.

Another major step in the accurizing process is glass bedding of the receiver into the stock. With a rock-hard foundation on which to rest rather than a flexible wooden stock, the receiver will maintain its same relative position within the rifle, shot after shot. We use a fiberglass compound which is spread into the inletted stock. The greased receiver is then forced down into the compound where it remains until the glass is partially hardened. After the receiver is removed, excess glass is trimmed. The receiver is then replaced in the stock and, if the fit is good, the rifle is ready.

In the routing of M-1 stocks in preparation for glassing, we were confronted with the problem of obtaining uniformity in the size and depth of the cuts. To overcome this, we made two jigs for use in stock work. The first is used in routing the top and horseshoe of the stock. With this jig, an even width of ⅛ inch and standard depth (as desired) is obtained. The second jig is for the accurate routing of the underside of the stock.

AMMUNITION

In the ammunition field, many tests have been conducted with all calibers to determine which loads are most adaptable to the needs of the unit. In arriving at a suitable load, several factors are taken into

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FOR SALE: 12 gauge Hollywood shotshell dies for Turret Tool. Complete dies **and** with shell holder, primer arm and shot measure. Good as new, $60.00. Write P. L. Jackson, Marcellus, New York.

WANT: Heavy Varmint Bench Rest Rifle. Must be accurate. E. V. Menefee, 505 South High Street, Rising Sun, Indiana.

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consideration. Pressure is a major factor nad should, obviously, never exceed the limitations of the weapon. Consistency of velocity should result in an extreme variation of not more than 20 feet per second as determined by the chronograph. Wind-bucking capability of the round is another important factor and can only be determined by firing test groups under varying wind conditions on an outdoor range. Consistent accuracy is the determinant in selecting a round for use in competition. At any range, a consistent accuracy of ⅔ minute of angle (two inches at 300 yards) is determined to be acceptable.

Rifle cartridges now in use by the USAAMU which are acceptable under the accuracy standards mentioned above are as follows:

.22 caliber: Remington Rifle Match; Western Mk III

6 mm: Handload—32.8 grains of 3031 powder behind an 85 gr. hollow point boattail bullet. Case is a 250/3000 Savage with shoulders pushed back (fired in 1 in 12" twist barrel).

.308 caliber: Handload—39 grains 3031 powder, 168 gr. HP boat-tail bullet (this round is now being produced commercially).

30-06 caliber: Handload — 48-5 gr. 4064 powder, 200 gr. boat-tail bullet.

300 Magnum (IMP): Handload—200 grain boat-tali bullet propelled by 70.5 gr. 4350 powder.

All pistol ammunition now in use may be purchased from commercial sources.

In summary, it has been proven that the production of winning rifle or pistol team requires that superior weapons and top quality ammunition be combined with the individual shooter's thorough knowledge of his profession. The Army Advanced Marksmanship Unit Ordnance Section is charged with the constant testing of new weapons, new and improved ammunition, and methods of equipment repair. This program is as vital to the overall competitive marksmanship program as the fielding of a National Trophy-winning team. Results of the USAAMU research and development program, when proven satisfactory to Army Ordnance experts, are immediately disseminated to all persons interested in the shooting game. In this way, USAAMU continues to insure that the American citizen—soldier and civilian alike—will be kept abreast of the newest and best marksmanship developments and maintain their centuries old heritage of proficiency with firearms.

BROWNELL'S LATIGO SLING

Bob Brownell's (Montezuma, ,Iowa) patented "LATIGO" quick-set rifle sling is, in this writer's opinion, the best and most convenient sling for sporter rifles that he has ever seen.

This one inch wide sling of top grade leather is fitted to the sling swivels of the individual rifle (according to instructions supplied with the sling) and is then instantly adjustable for either carrying **or shooting** without any monkeying with buckles, hooks or laces; there are none of those to monkey with.

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PHT

A GOLD CUP NATIONAL MATCH .38 SPECIAL target pistol has just been announced by COLT'S. The new pistol is said to be identical in physical appearance to the Gold Cup National Match .45, but is entirely new internally. It is stated that the pistol will be available in limited numbers early this year from dealers. PHT

THE PRESIDENT'S CORNER

(Continued from Page Ten)

region as well as providing a very enjoyable week-end for shooting friends to meet.

In the following months I will try to keep you informed of any new rulings and the reason for same, problems to be dealt with in the future, and other details that I hope will be of interest.

Until February,
Bob (Robert W. Hart)

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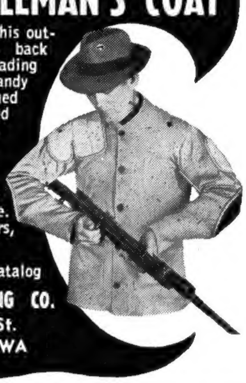

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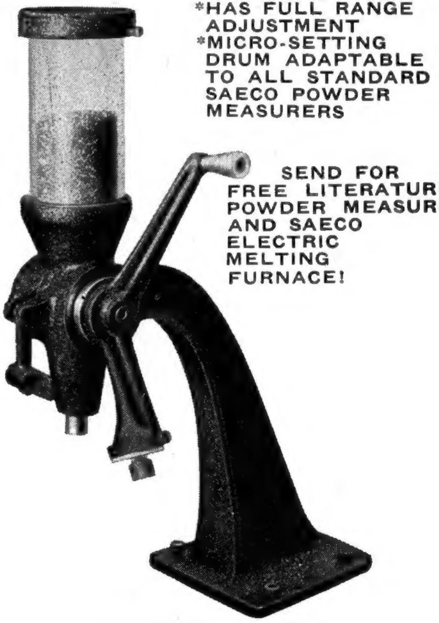

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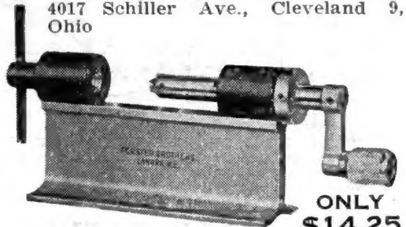

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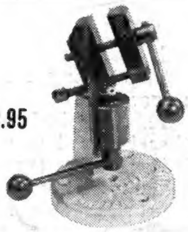

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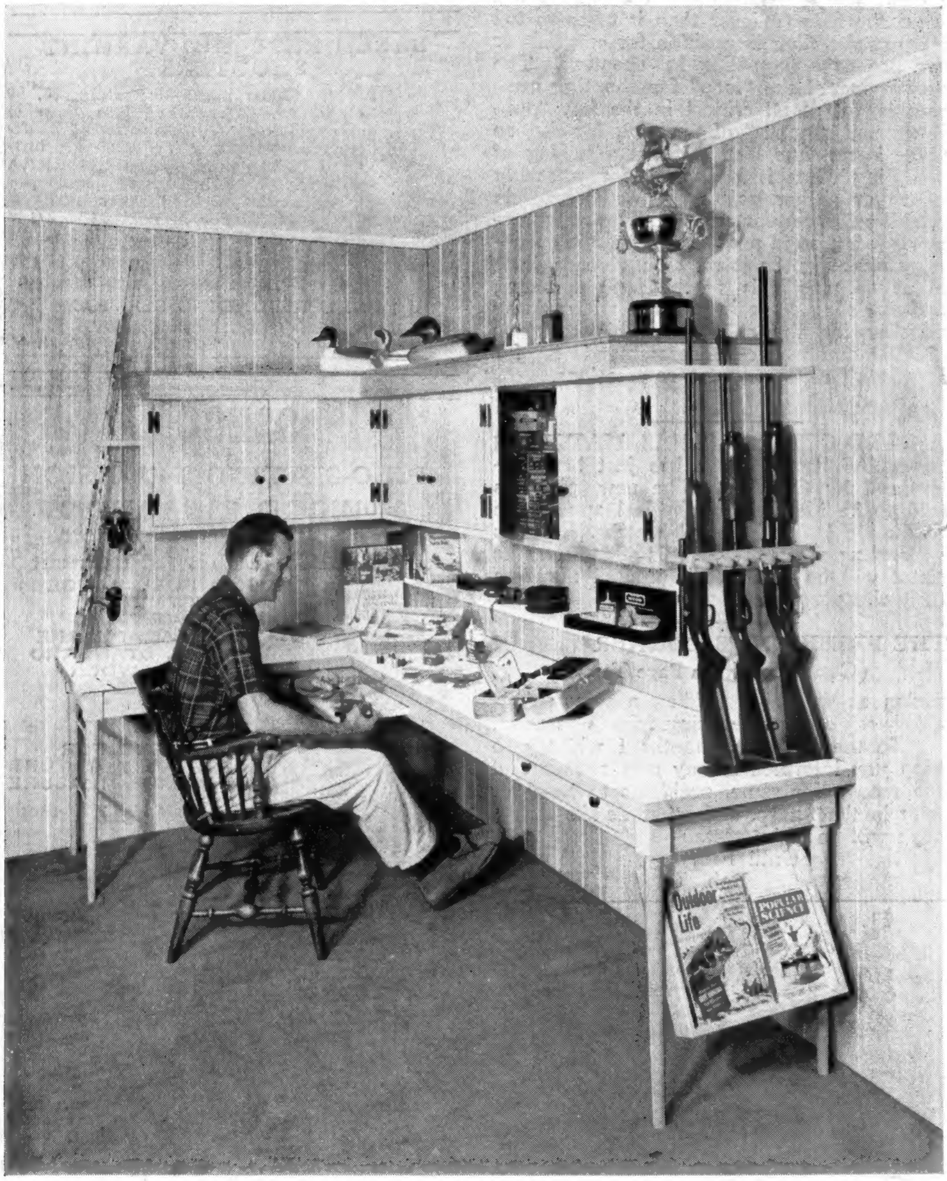

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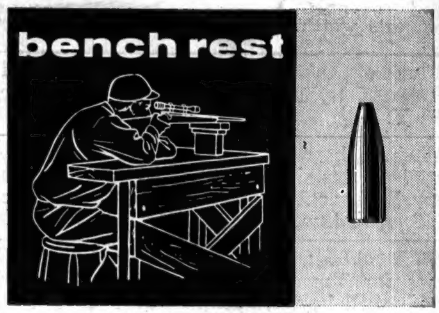

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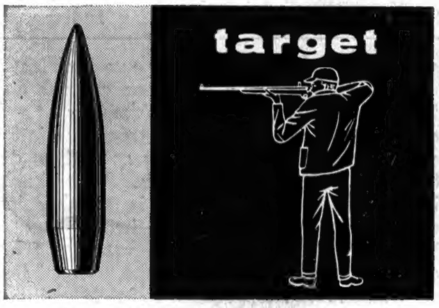

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